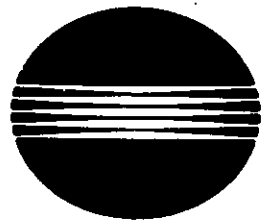


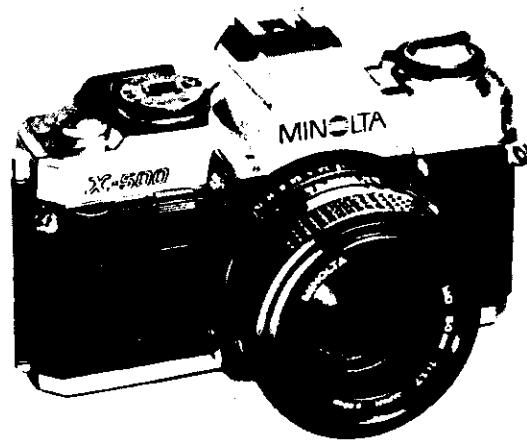
Service Manual

X-500	CODE No. 2024-100/-200
X-570	CODE No. 2024-400
X-300	CODE No. 2025-100
X-370	CODE No. 2025-300



MINOLTA

X-500 [2024-100, -200 (black)]
X-570 [2024-400 (black)]
For U.S.A. & Canada



TYPE OF CAMERA

Electrically controlled 35mm focal plane shutter
 SLR AE camera
 Photography system : Aperture priority AE and
 manual photography
 Standard lens : MD50mm F1.2, MD50mm F1.4,
 MD50mm F1.7
 Lens mount : Minolta SLR bayonet mount
 Film used : J135 rolled film
 Size of image field : 24mm×36mm

SHUTTER

Electrically controlled focal plane shutter
 (Traveling horizontally)
 Shutter speed : Auto...4 sec. to 1/1000 sec.
 Manual...1, 1/2, 1/4, 1/8, 1/15,
 1/30, 1/60, 1/125, 1/250,
 1/500, 1/1000 sec. and B
 (bulb).
 Shutter speed dial : Click stop endless dial
 (locked at "A" setting)
 Shutter release : Electromagnetic release, remote
 cord, wireless controller IR-1
 can be mounted.
 Shutter release locks in case of
 battery voltage drop.
 With main switch at ON.
 Camera vibration warning :
 Beeping sound is given as warning
 when the shutter speed becomes
 slower than 1/30 sec in A mode.
 Self timer : Electronic self-timer starts by
 depressing the operating button.
 Operation is indicated by camera-
 front LED blink and beeping sound
 for 10 sec. with the main switch
 set at ON.
 Shutter release notice is given.
 Self-timer operation can be
 canceled anytime before release.

EXPOSURE CONTROL

Light metering system : TTL center-weighted
 average metering (Minolta
 direct metering, using
 exclusive auto electro-
 flash)
 Receiver element : 2 Silicon photocells
 Auto exposure interlock range
 : EV 1-18 (ASA/ISO 100 F1.4 lens)
 Film speed scale : ASA/ISO 12-3200 (locked every
 1/3 step)
 AE lock : Only for A mode.
 : Operation by pushing self-timer
 lever down.

: It can be used to obtain slow-
 shutter sync with exclusive flash
 used.

Metering switch : By touch switch or depressing
 of operating button slightly.
 Memorizing of metering and
 finder LED indication for 15
 sec. after the switch OFF.

VIEW FINDER

Type : SLR pentaprism type
 Focusing screen : Center...Split-image and micro-
 prism
 Periphery...Acute Matte
 Viewfinder showing : 95% of 24mm×36mm film-
 frame area
 Magnification : 0.9× (using 50mm lens at ∞ set-
 ting)
 Dioptric power : -1 diop.
 Finder indication :
 : Mode indication in use (A, M)
 : Shutter speed scale with LED
 indication
 : Slow shutter speed indication for
 1-4 sec (▽)
 : Over-/under- range LED indication
 blinking at 4 Hz (△/▽)
 : B-setting indicator (*)
 : Aperture setting (through the
 optical finder block)
 : Setting shutter speed indicator
 (Shutter speed LED blinking at
 4 Hz)
 : Flash-ready signal (LED next to
 "60" blinking at 2 Hz)
 : FDC signal (LED next to "60"
 blinking at 2 Hz)
 : Battery check (by mode indication:
 Indicator ON when batteries are
 serviceable; blinking when near
 exhaustion; no LEDs light when
 exhausted)
 Mirror : Slide-up quick return

FLASH SYNC

- Sync speed : X contact, electroflash is synchronized at speeds lower than 1/60 sec; flash bulb is at speeds lower than 1/15 sec.
In A mode controlled by TTL metering.
Slow-shutter sync by using AE lock to cancel auto switching to 1/60 sec.
In M mode, controlled to 1/60 sec. (except for "B" setting) and flash fires manually. (When "B" setting, used for bulb, flash fires manually)
- Hot shoe : Direct contact (With electric shock prevention device), sync auto control contact
- Sync terminal : JIS B type socket

FILM WINDING, REWINDING

- Film winding : By lever. Winding at an angle of 130° (preliminary angle: 30°)
: Auto winding by Motor Drive 1 or Auto Winder
: With Safe Load Signal
- Film counter : Auto resetting calculation. With Safe Load Signal
- Film rewinding : By rewind button and crank system; auto reset of rewind button.

BACK COVER

- Opening/Closing by pulling up knob, snapping back the cover.
- With grip, memo holder (ISO, DIN, ASA table)
- Possible to attach/detach

POWER

- Two 1.5 V alkaline-manganese (LR44: Eveready A-76 or equiv.) or two 1.55 V silver-oxide (SR44: Eveready G-13 or equiv.)

OTHERS

- Preview button, Battery holder and Eyepiece cap

SIZE AND WEIGHT

- 51.5×89×137 mm (2×3-1/2×5-3/8 in.)
485 g (17-13/16 oz.) without power cells

EXCLUSIVE ACCESSORIES

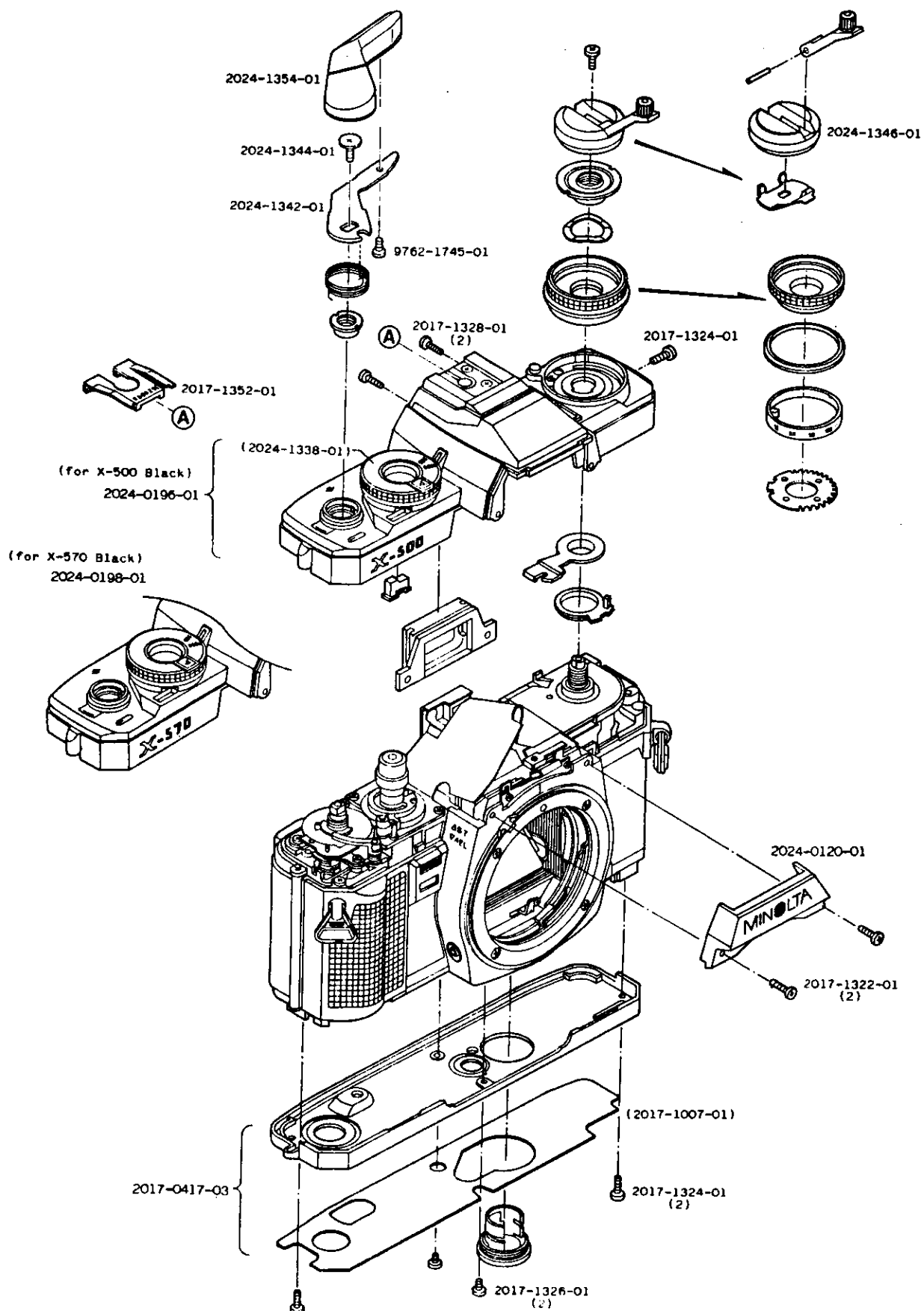
- Flash : Auto Electroflash 280PX
Winder, drive : Motor Drive 1, Auto Winder G
Data Back : Multi-Function Back, Quartz Data Back 1
Remote control : Wireless Controller IR-1, Remote Cord S/L

■ Following table shows exclusive parts for X-500 Black model (2024-200) and X-570 Black model (2024-400). The other parts than the following, refer to Service Manual for X-500 chrome model (2024-100). The difference between 2024-200 and 2024-400 is only the top cover.

■ ここに記載されている内容は、X-500 Black model (2024-200), X-570 Black model (2024-400) 専用部品をまとめたリストです。この内容以外は、X-500 Chrome model (2024-100) のサービスマニュアルを参照して下さい。尚、2024-200と2024-400の違いは上カバーのみです。





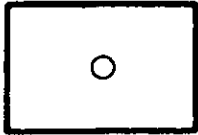
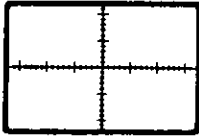


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2024-0198-----	1		
2017-0417-----	1		
2017-1007-----	1		
2017-1322-----	1		
2017-1324-----	1		
2017-1326-----	1		
2017-1238-----	1		
2024-1338-----	1		
2024-1342-----	1		
2024-1344-----	1		
2024-1346-----	1		
2017-1352-----	1		
2024-1354-----	1		

X-500 (Black model)**CODE No. 2024-200****X-570** (Black model)**CODE No. 2024-400**

Part No.	Part Name		Qty
2024-0120-01	Front top cover set	上部正面カバーセット	1
2024-0196-01	Top cover set (for X-500 Black)	上カバーセット	} 1
2024-0198-01	Top cover set (for X-570 Black)	上カバーセット	
(2024-1338-01)	Shutter dial plate	シャッターダイヤル銘板	1
2017-0417-03	Bottom cover set	下カバーセット	1
(2017-1007-01)	Bottom cover sheet	下カバー保護シート	1
2017-1322-01	Screw	止めねじ	2
2017-1324-01	Screw	止めねじ	3
2017-1326-01	Screw	止めねじ	2
2017-1328-01	Screw	止めねじ	2
2024-1342-01	Film advance lever	巻上レバー	1
2024-1344-01	Winding lever pressure	巻上レバー押えビス	1
2024-1346-01	Rewinding knob	巻戻しノブ	1
2017-1352-01	Accessory shoe spring	アクセサリシューバネ	1
2024-1354-01	Film advance lever knob	巻上レバー指当て	1
9762-1745-01	Tap tite screw	十字穴付なべ頭タップタイトねじ	1

INTERCHANGEABLE FOCUSING SCREENS FOR MINOLTA X-700, X-500 & X-570

	Part No.	Part Name	
	2017-5851-01	Focusing screen Type P1	焦点板 P1型
	2017-5852-02	Focusing screen Type P2	焦点板 P2型
	2017-5853-01	Focusing screen Type Pd	焦点板 Pd型
	2017-5854-01	Focusing screen Type M	焦点板 M型
	2017-5855-01	Focusing screen Type G	焦点板 G型
	2017-5856-02	Focusing screen Type S	焦点板 S型
	2017-5857-01	Focusing screen Type L	焦点板 L型
	2017-5858-02	Focusing screen Type H	焦点板 H型

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2017-0110-----	3	2024-0256-----	9	2024-0422-----	6
2017-0113-----	4, 14	2017-0258-----	16	2024-0430-----	2
2024-0119-----	1	2024-0261-----	1	2024-0491-----	18
2024-0130-----	4	2017-0267-----	16		
2006-0140-----	3	2024-0274-----	15	2024-0505-----	10
2024-0147-----	2	2024-0280-----	15	2017-0510-----	7
2024-0151-----	2			2024-0511-----	10
2024-0153-----	8			2024-0512-----	9
2017-0163-----	6	2017-0301-----	1	2017-0517-----	10
2024-0166-----	15	2017-0307-----	12	2017-0519-----	10
2017-0175-----	6	2017-0308-----	12	2024-0530-----	9
2024-0195-----	2	2017-0310-----	12	2024-0534-----	8
		2017-0312-----	12	2024-0539-----	9
2017-0201-----	16	2017-0322-----	12	2024-0542-----	7
2017-0207-----	16	2017-0328-----	12	2024-0550-----	7
2017-0209-----	17	2017-0331-----	13	2017-0570-----	9
2017-0211-----	16	2024-0332-----	1	2017-0571-----	9
2006-0215-----	17	2017-0338-----	12	2024-0572-----	9
2017-0216-----	16	2024-0341-----	11	2024-0576-----	6
2017-0218-----	16	2017-0345-----	11	2024-0583-----	7
2017-0219-----	16	2024-0350-----	13	2024-0584-----	9
2017-0226-----	17	2017-0352-----	13		
2017-0227-----	17				
2017-0229-----	17	2024-0401-----	15	2006-0881-----	4
2017-0242-----	17	2024-0404-----	15		
2024-0248-----	1	2024-0412-----	1	2024-1005-----	6
2024-0249-----	4	2017-0415-----	1	2017-1006-----	8
2017-0252-----	9	2024-0416-----	1	2017-1007-----	1
2017-0253-----	16	2024-0418-----	8	2017-1008-----	8

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2017-1009-----	1	2006-1106-----	3	2024-2052-----	2
2017-1010-----	6	2006-1108-----	3	2019-2053-----	1
2006-1011-----	6	2017-1110-----	14	2019-2067-----	1
2006-1014-----	8	2024-1111-----	14		
2024-1015-----	4	2006-1112-----	14	2017-2104-----	17
2024-1016-----	4	2006-1116-----	3	2017-2105-----	17
2006-1018-----	2	2017-1117-----	3	2017-2108-----	16
2024-1021-----	4	2006-1119-----	3	2006-2114-----	17
2024-1023-----	4			2017-2123-----	17
2024-1024-----	4	2017-1202-----	3	2017-2126-----	17
2024-1025-----	4	2017-1203-----	3	2006-2130-----	17
0031-1027-----	4	2017-1204-----	3	2017-2131-----	17
0031-1034-----	4	2017-1205-----	3	2017-2132-----	17
2017-1041-----	14			2006-2143-----	17
2006-1042-----	14	2017-1321-----	1	2006-2144-----	17
2017-1043-----	14	2017-1323-----	1	2017-2147-----	17
2024-1052-----	2	2017-1325-----	1	2017-2148-----	17
2017-1054-----	2	2017-1327-----	1	2017-2157-----	16
2017-1057-----	2	2024-1337-----	2	2017-2166-----	16
2005-1061-----	6	2024-1345-----	1	2017-2168-----	16
2006-1061-----	2	2017-1349-----	14	2017-2183-----	16
2005-1062-----	6	2017-1351-----	1	2006-2184-----	16
2017-1062-----	2	2017-1365-----	4	2017-2184-----	16
2005-1063-----	6			2017-2185-----	17
2017-1064-----	6	2024-2003-----	2	2017-2189-----	16
2024-1068-----	2	2024-2016-----	15	2017-2191-----	16
2024-1069-----	2	2006-2017-----	15	2017-2192-----	16
2024-1071-----	2	2024-2018-----	1		
		2024-2025-----	15	2017-2204-----	16

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2017-2205-----	8, 16	2006-3040-----	12	2017-3422-----	11
2017-2212-----	16	2017-3041-----	13	2017-3424-----	11
2019-2291-----	8	2024-3042-----	13		
		2017-3048-----	12	2024-4013-----	2
2017-2517-----	9	2017-3051-----	13		
2017-2519-----	9	2006-3053-----	13	2024-4023-----	2
2024-2577-----	9	2017-3055-----	13	2024-4024-----	2
2017-2585-----	6	2017-3056-----	12		
		2017-3057-----	12	2017-4216-----	5
2006-2718-----	16	2017-3058-----	12	2017-4222-----	5
2006-2749-----	16	2017-3065-----	12	2024-4256-----	2
2006-2758-----	16	2017-3066-----	12	2024-4321-----	9
2006-2762-----	16			2024-4460-----	8
2006-2773-----	16	2019-3303-----	1		
		2017-3304-----	14	2017-5006-----	4
2019-3002-----	1	2019-3306-----	1	2024-5008-----	4
2006-3003-----	1	2019-3308-----	14	2017-5013-----	7
2017-3005-----	1	2017-3309-----	14	2017-5014-----	7
2006-3009-----	12	2024-3311-----	1	2017-5015-----	7
2017-3010-----	5	2017-3312-----	14	2017-5016-----	7
2017-3013-----	1			2017-5017-----	7
2017-3020-----	12	2017-3403-----	11	2017-5018-----	7
2017-3021-----	12	2017-3404-----	11	2017-5019-----	10
2017-3024-----	5	2017-3405-----	11	2017-5021-----	10
2017-3025-----	12	2017-3407-----	11	2017-5025-----	10
2017-3026-----	12	2017-3410-----	11	2017-5026-----	10
2017-3027-----	12	2017-3414-----	11	2017-5027-----	10
2017-3032-----	12	2017-3416-----	11	2017-5028-----	10
2017-3037-----	13	2017-3421-----	13	2017-5029-----	10

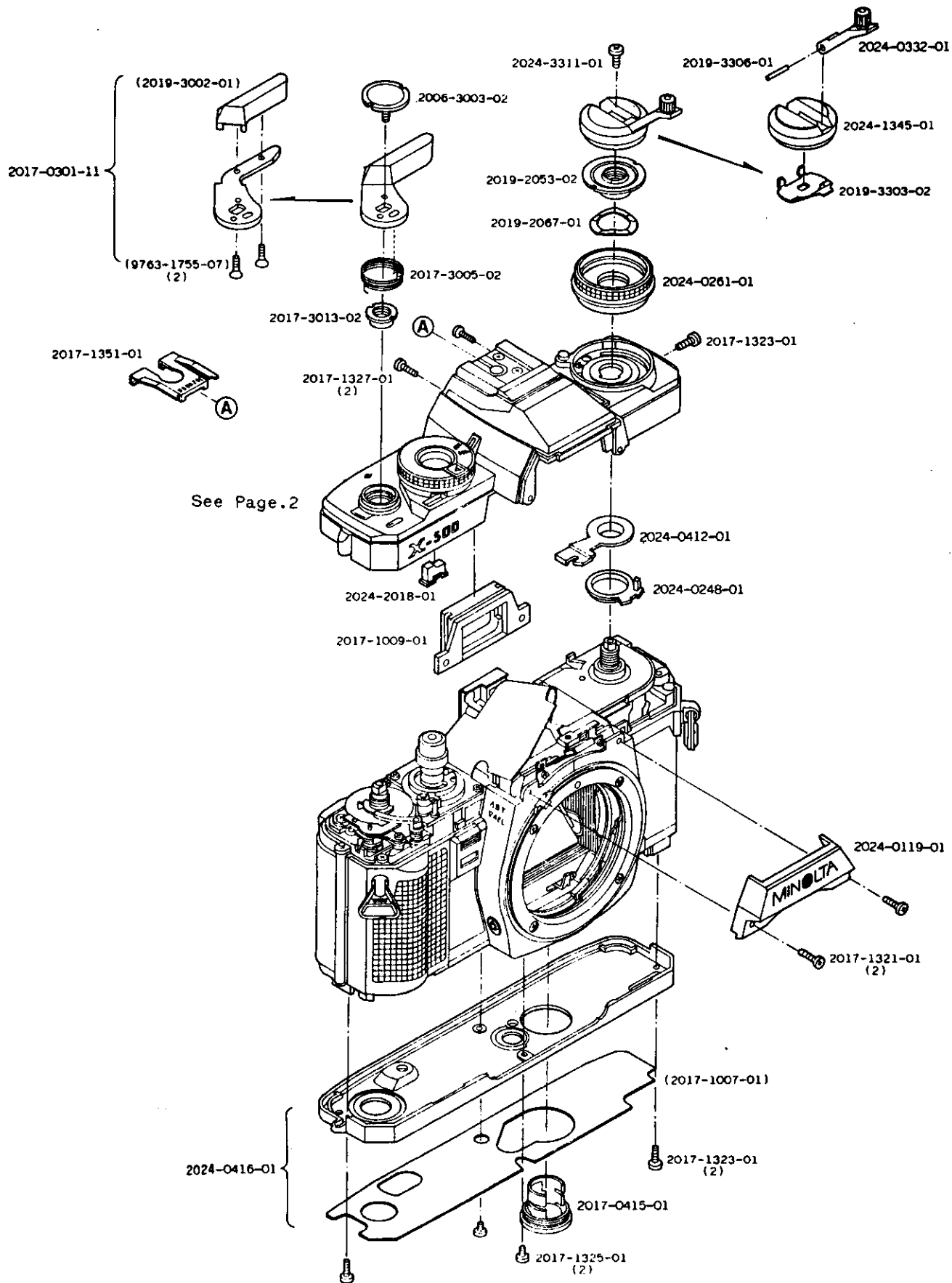
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2017-5031-----	7	2006-9109-----	3	9612-1635-07-----	6
2017-5032-----	7	2006-9112-----	2	9612-1640-07-----	4
2024-5033-----	4	2017-9113-----	5	9612-2080-07-----	4,14
2017-5034-----	7	2017-9114-----	4		
2024-5035-----	9	2006-9121-----	14	9613-1418-07-----	17
2009-5038-----	8			9613-1645-01-----	2
2006-5039-----	6,7	2017-9245-----	2	9615-1416-07-----	17
2024-5080-----	6				
		2006-9401-----	14	9761-1725-07-----	12
2024-5106-----	9	2017-9430-----	11	9761-1730-07-----	4,5
2006-5112-----	10	2017-9441-----	12	9761-1740-07-----	14
2024-5114-----	10	2017-9443-----	5	9761-2035-07-----	5
2006-5119-----	10			9761-2040-07-----	13
2024-5121-----	9	Screw		9761-2050-07-----	4,5
		9611-1616-12-----	10	9761-2060-07-----	5
2024-5805-----	7	9611-1620-07-----	4,6		
2019-5806-----	10	9611-1625-01-----	8	9762-1735-07-----	4
		9611-1625-07-----	6,8	9762-1740-07-----	7
2017-9001-----	10	9611-1630-04-----	14	9762-1745-07-----	4
2005-9005-----	9	9611-2030-01-----	5	9762-2040-07-----	12
2024-9006-----	9	9611-2040-04-----	6	9762-2045-07-----	14
2017-9011-----	12			9762-2060-07-----	11
2017-9012-----	12				
2017-9018-----	15	9612-1620-01-----	9	9763-1735-07-----	4
		9612-1620-07-----	10,15,16	9763-1755-07-----	1
2024-9101-----	8	9612-1625-01-----	16		
2017-9106-----	7	9612-1625-07-----	8,9,16	9765-1740-07-----	4,7
2017-9107-----	8	9612-1630-07-----	6,8		

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9721-0080-50-----9		9422-1016-62-----18		9564-4734-64-----18	
9721-0120-13--15,16,17		9422-1026-62-----18		9565-1034-64-----18	
9721-0150-13--9,13,16,17		9422-1246-62-----18		9565-3338-65-----18	
9721-0200-13-----5		9422-1846-62-----18		9565-4705-62-----18	
9721-0300-13-----15		9422-3946-62-----18		9565-4738-65-----18	
		9422-6826-62-----18			
Washer		9422-6836-62-----18		Lead wire	
9791-2140-40-----17		9422-8236-62-----18		9391-0507-00-----19	
9792-2140-40-----8,12				9391-0507-01-----19	
9793-1640-40-----9		9431-3348-62-----18		9391-0507-02-----19	
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		9432-1536-62-----18		9391-0507-06-----19	
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9362-1032-02-----18		9432-3357-61-----18		9391-0807-02-----19	
9362-1032-03-----18				9391-0807-03-----19	
9362-1032-04-----18		Variable resistor		9391-0807-04-----19	
9362-1261-02-----18		9472-1039-63-----18		9391-0807-05-----19	
9362-1261-03-----18		9472-1539-63-----18		9391-0807-06-----19	
		9472-2239-64-----18		9391-0807-07-----19	
9363-1032-01-----18		9472-3329-63-----18		9391-0807-08-----19	
9363-1032-02-----18				9391-0807-09-----19	
9363-1032-03-----18		Condenser		9391-0807-10-----19	
		9531-1575-61-----18		9391-0807-11-----19	
Crystal resonator		9564-1034-61-----18			
9373-4162-01-----18		9564-2204-65-----18			

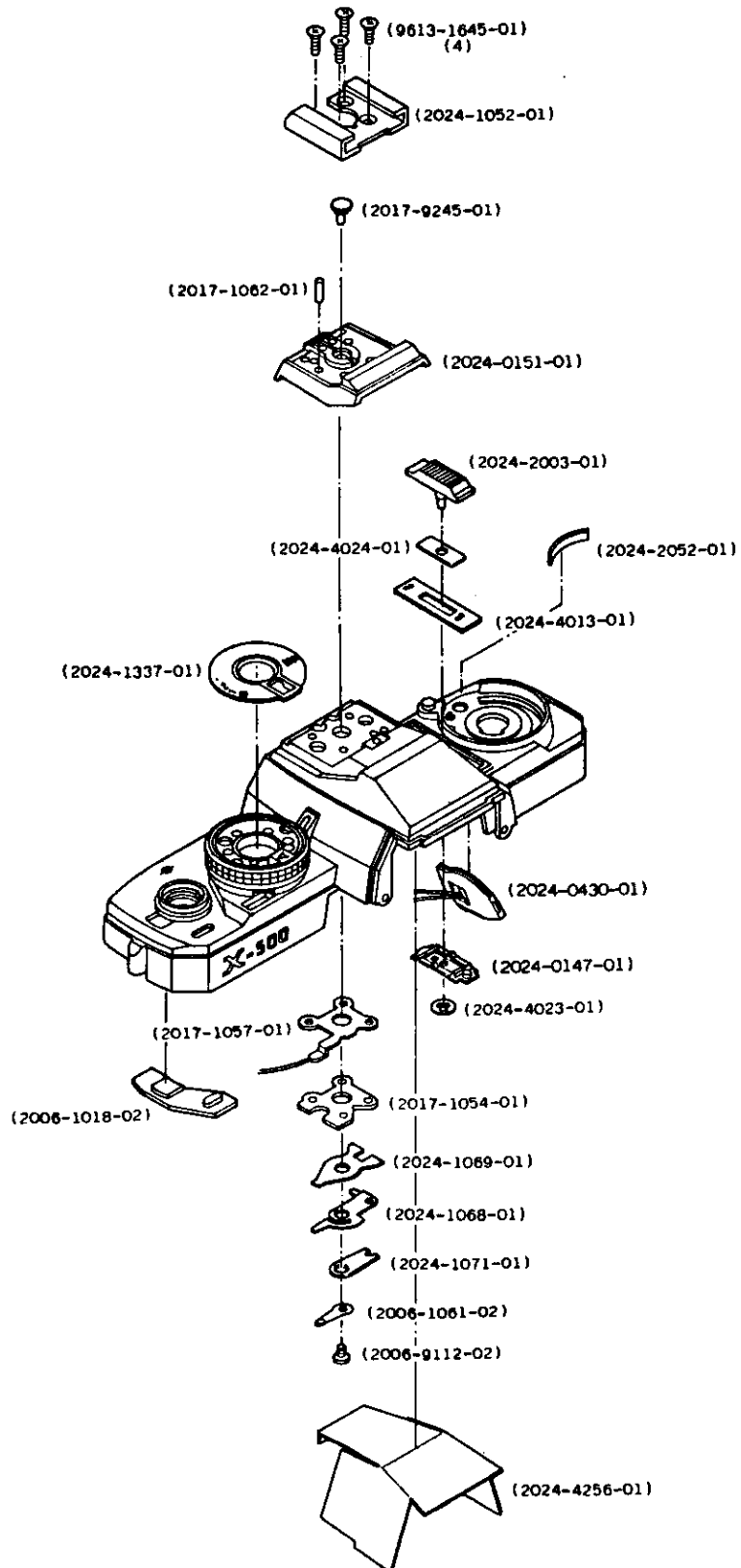
X-500 (Chrome model) CODE No. 2024-100



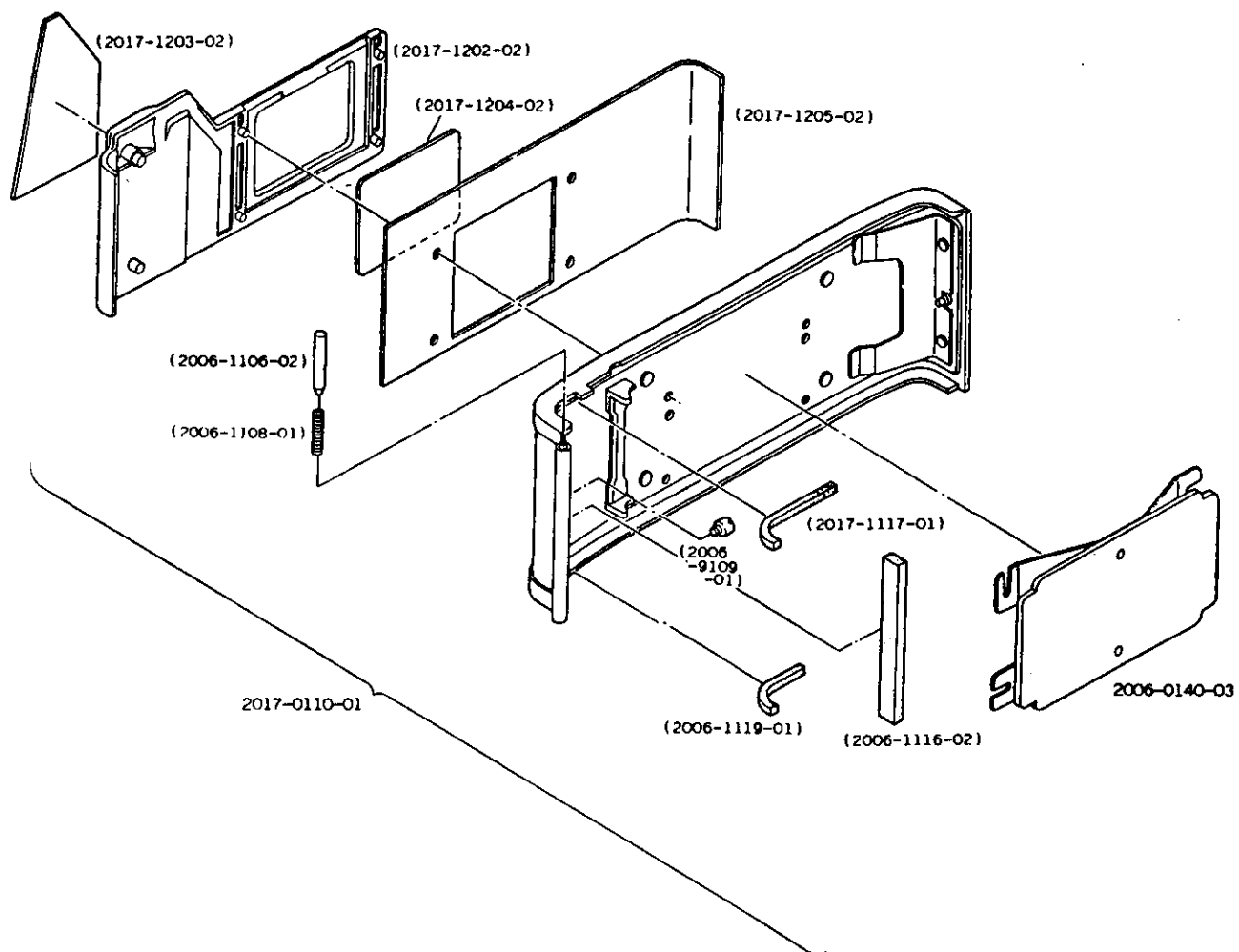
Part No.	Part Name		Qty
2024-0119-01	Front top cover set	上部正面カバーセット	1
2024-0248-01	ASA contact holder set	ASA ブラシホルダーセット	1
2024-0261-01	ASA operation knob set	ASA 操作ノブセット	1
2017-0301-11	Film advance lever set	巻上レバーセット	1
(2019-3002-01)	Film advance lever knob	巻上レバー指当て	1
(9763-1755-07)	Tap tite screw	十字穴付皿頭タップタイトねじ	2
2024-0332-01	Rewinding handle set	巻戻しハンドルセット	1
2024-0412-01	Main switch guide plate set	メインスイッチガイド板セット	1
2017-0415-01	Battery holder set	電池ケース蓋セット	1
2024-0416-01	Bottom cover set	下カバーセット	1
(2017-1007-01)	Bottom cover sheet	下カバー保護シート	1
2017-1009-01	Eye-piece frame	接眼枠	1
2017-1321-01	Screw	止めねじ	2
2017-1323-01	Screw	止めねじ	3
2017-1325-01	Screw	止めねじ	2
2017-1327-01	Screw	止めねじ	2
2024-1345-01	Rewinding knob	巻戻しノブ	1
2017-1351-01	Accessory shoe spring	アクセサリーシューバネ	1
2024-2018-01	Auto lock button	オートロック釦	1
2019-2053-02	ASA dial nut	ASA 押えナット	1
2019-2067-01	Pressure spring	ASA 操作リング押えばね	1
2006-3003-02	Winding lever pressure	巻上レバー押え	1
2017-3005-02	Film advance lever spring	巻上レバー戻しSP	1
2017-3013-02	Top cover nut	上カバー止めナット	1
2019-3303-02	Rewinding handle spring	巻戻しハンドルばね	1
2019-3306-01	Rewinding handle axis	巻戻しハンドル軸	1
2024-3311-01	Rewinding handle screw	巻戻しノブビス	1

X-500 (Chrome model) CODE No. 2024-100

Assy Part No. 2024-0195-01

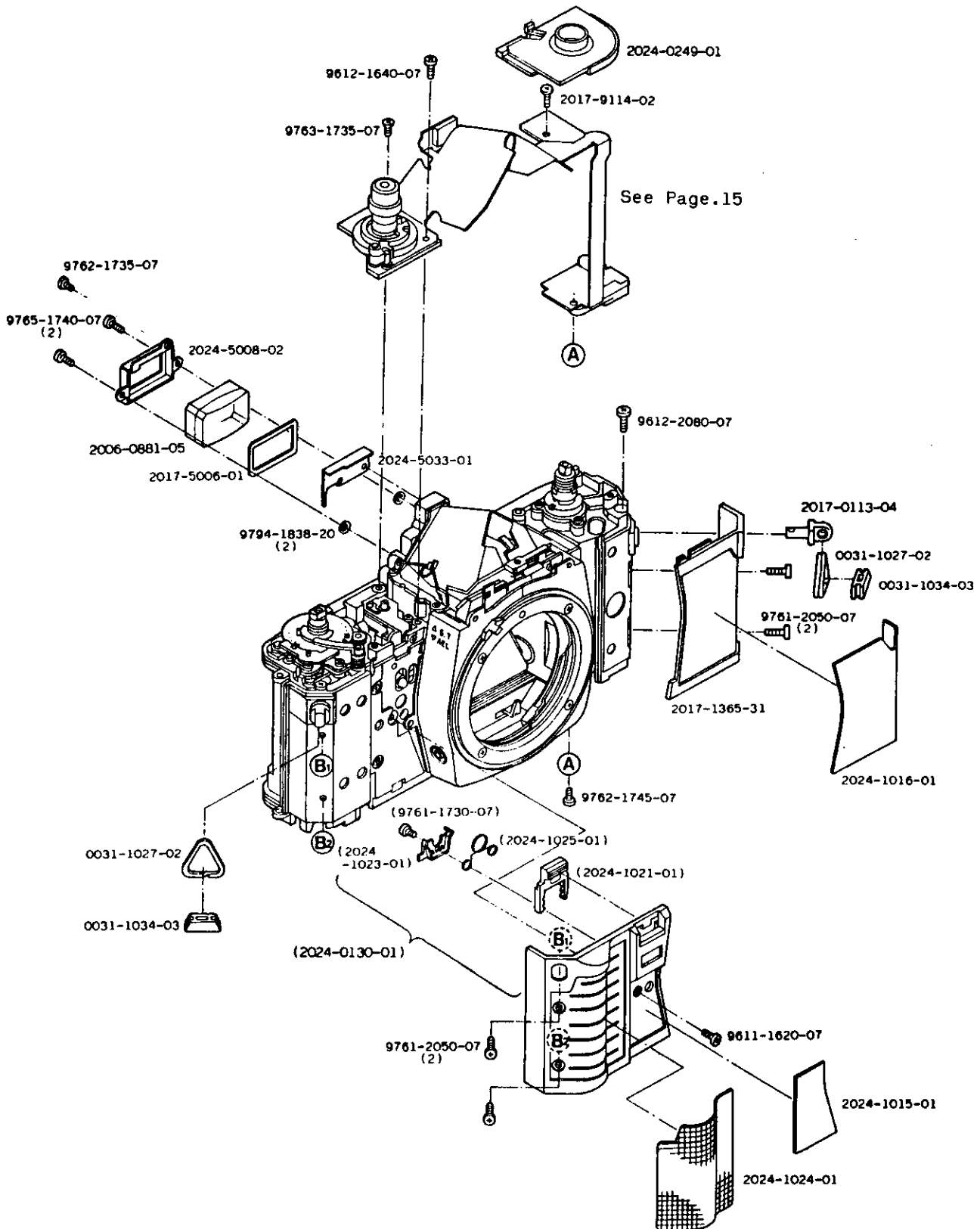


Part No.	Part Name		Qty
2024-0195-01	Top cover set (for X-500)	上カバーセット	1
(2024-0151-01)	Accessory shoe base set	アクセサリシュー座セット	1
(2024-0430-01)	Piezo buzzer set	圧電ブザーセット	1
(2006-1018-02)	Counter window	カウンター窓	1
(2024-1052-01)	Accessory shoe	アクセサリシュー	1
(2017-1054-01)	Accessory shoe set plate	アクセサリシュー取付板	1
(2017-1057-01)	Contact-C	コンタクト接片C	1
(2006-1061-02)	Contact-D	コンタクト接片D	1
(2017-1062-01)	Contact operation pin	コンタクト接片連動ピン	1
(2024-1068-01)	Contact-E	コンタクト接片E	1
(2024-1069-01)	Contact isolation sheet	コンタクト接片絶縁シート	1
(2024-1071-01)	Contact isolation plate	コンタクト接片絶縁板	1
(2024-1337-01)	Shutter dial plate	シャッターダイヤル銘板	1
(2024-2003-01)	Main switch	メインスイッチ切換レバー	1
(2024-2052-01)	ASA window	ASA 窓	1
(2024-4013-01)	Main switch plate	メインSW銘板	1
(2024-0147-01)	Click plate set	メインSWクリックバネセット	1
(2024-4023-01)	Snaping ring	メインSW止め輪	1
(2024-4024-01)	Main switch sheet	メインSWレバーシート	1
(2024-4256-01)	Top-cover isolation sheet	上カバー絶縁シート	1
(2006-9112-02)	Screw	止めねじ	1
(2017-9245-01)	Contact-A	コンタクト接点A	1
(9613-1645-01)	Phillips type screw	十字穴付半丸皿頭小ねじ	4

X-500 (Chrome model) **CODE No. 2024-100**

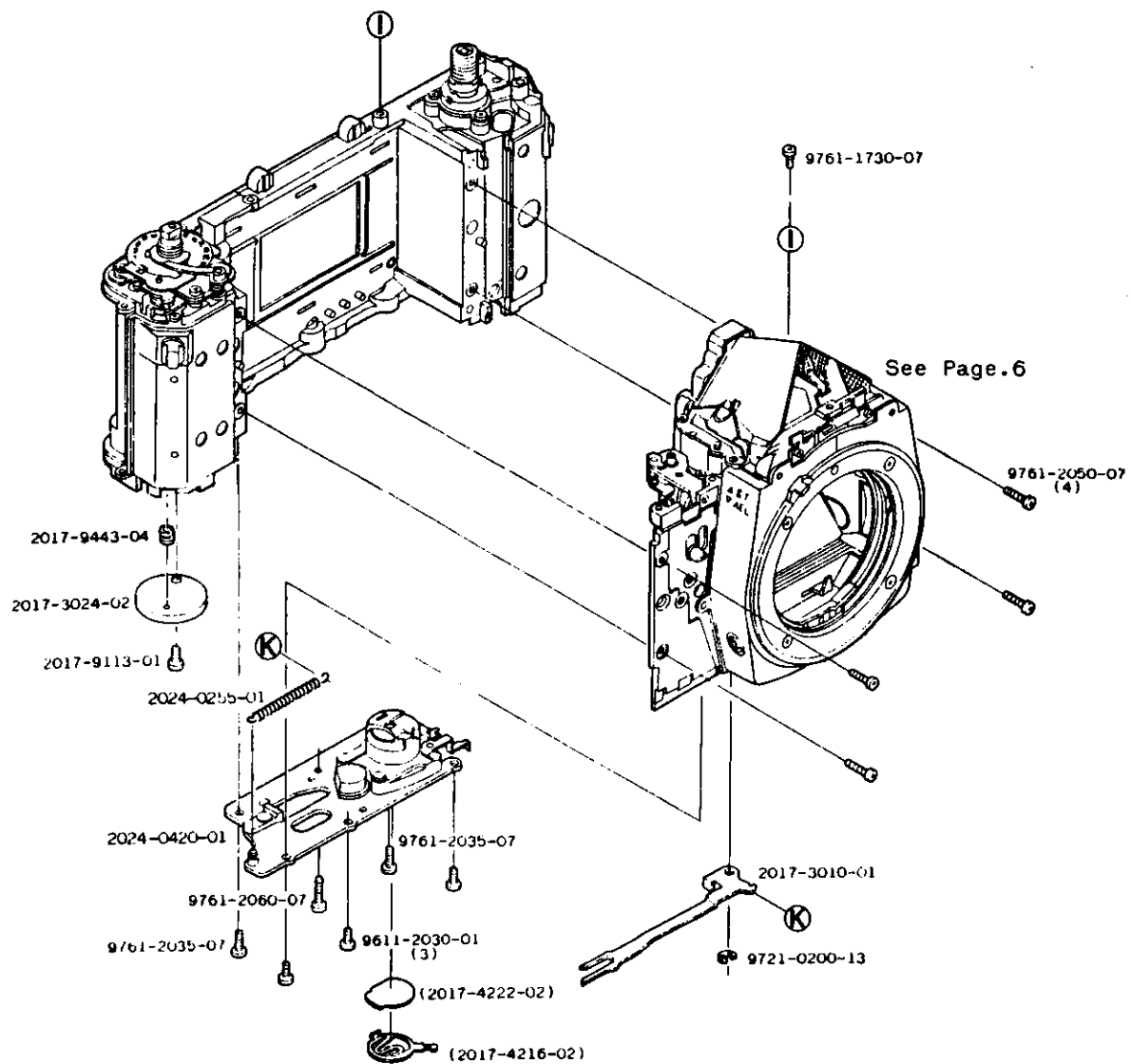
Part No.	Part Name		Qty
2017-0110-01	Back cover set	裏蓋セット	1
(2006-1106-02)	Hinge axis-A	ヒンジ軸 A	1
(2006-1108-01)	Hinge spring	ヒンジスプリング	1
(2006-1116-02)	Back cover light shield plate	裏蓋遮光片	1
(2017-1117-01)	Back cover light shield plate-C	裏蓋遮光片	1
(2006-1119-01)	Back cover light shield plate-B	裏蓋遮光片 B	1
(2017-1202-02)	Back cover grip	裏蓋グリップ	1
(2017-1203-02)	Back cover grip leather	裏蓋グリップ貼皮	1
(2017-1204-02)	Conversion scale	フィルム感度換算板	1
(2017-1205-02)	Back cover leather	裏蓋貼皮	1
(2006-9109-01)	Hinge axis-A screw	裏蓋ヒンジ軸止めビス	1
2006-0140-03	Pressure plate set	圧着板セット	1

X-500 (Chrome model) **CODE No. 2024-100**



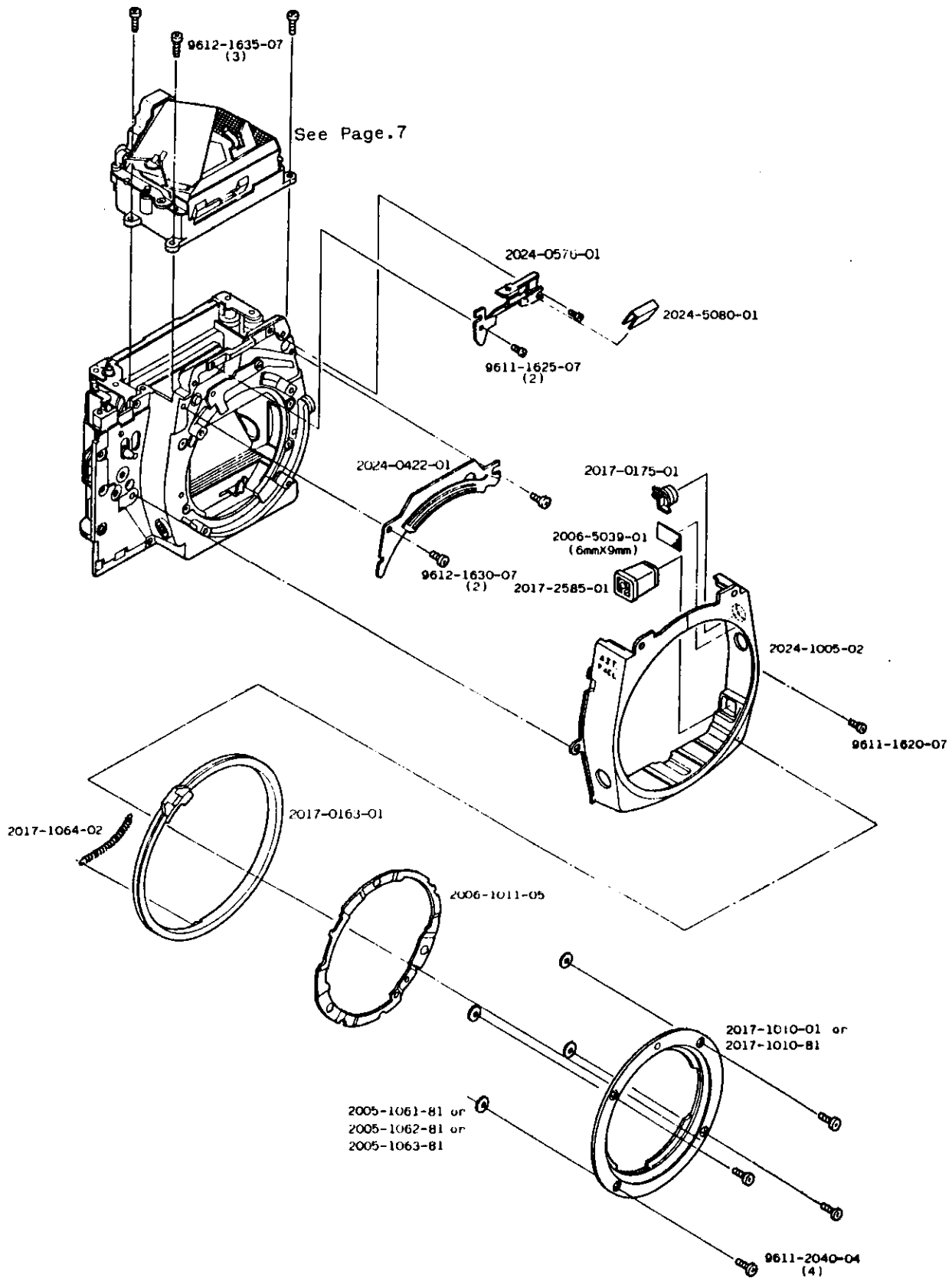
Part No.	Part Name		Qty
2017-0113-04	Strap hanger set	吊環セット	1
2024-0130-01	Side cover-A set	サイドカバーAセット	1
(2024-1021-01)	Self-timer lever	セルフレバー	1
(2024-1023-01)	Click spring	セルフクリックばね	1
(2024-1025-01)	Self-timer lever spring	セルフレバーSP	1
(9761-1730-07)	Tap tite screw	十字穴付なべ頭タップタイトねじ	1
2024-0249-01	ASA resistor set	ASA 抵抗体セット	1
2006-0881-05	Eye-piece lens set	接眼レンズセット	1
2024-1015-01	Right side leather	右貼皮	1
2024-1016-01	Left side leather	左貼皮	1
2024-1024-01	Grip leather	グリップ貼皮	1
0031-1027-02	Triangle hanger	三角吊環	2
0031-1034-03	Triangle hanger stopper	三角環回り止め	2
2017-1365-31	Side cover-B	サイドカバーB	1
2017-5006-01	Eye-piece light shield plate	接眼レンズ遮光枠	1
2024-5008-02	Eye-piece pressure	接眼レンズ押え	1
2024-5033-01	Shield plate	シールド板 A	1
2017-9114-02	Screw	止めねじ	1
9611-1620-07	Phillips type screw	十字穴付なべ頭小ねじ	1
9612-1640-07	Phillips type screw	十字穴付なべ頭小ねじ	1
9612-2080-07	Phillips type screw	十字穴付なべ頭小ねじ	1
9761-2050-07	Tap tite screw	十字穴付なべ頭タップタイトねじ	4
9762-1735-07	Tap tite screw	十字穴付なべ頭タップタイトねじ	1
9762-1745-07	Tap tite screw	十字穴付なべ頭タップタイトねじ	1
9763-1735-07	Tap tite screw	十字穴付半丸皿頭タップタイトねじ	1
9765-1740-07	Tap tite screw	十字穴付皿頭タップタイトねじ	2
9794-1838-20	Washer	薄ワッシャー	2

X-500 (Chrome model) **CODE No. 2024-100**

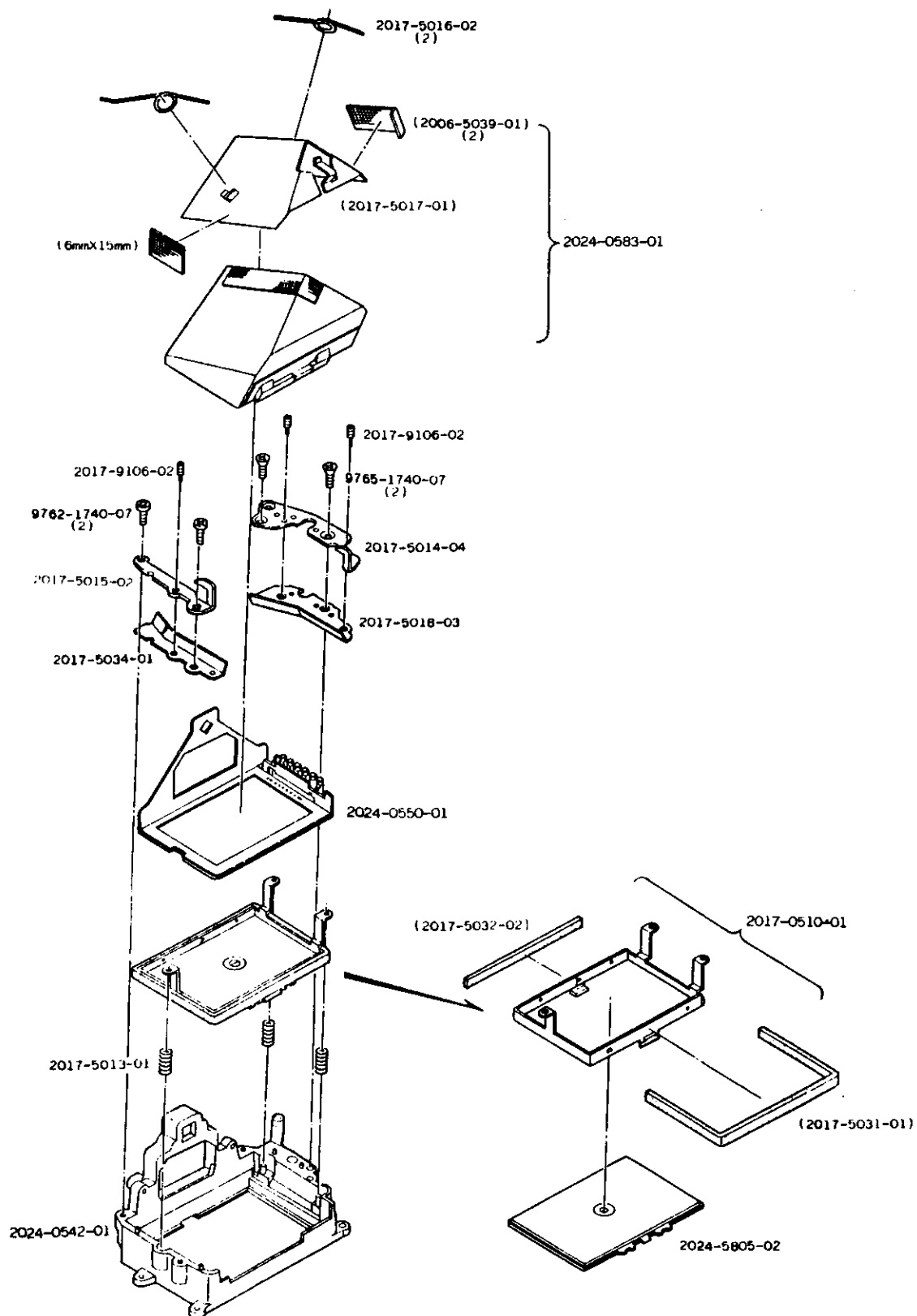


Part No.	Part Name		Qty
2024-0255-01	MP return sub spring-B set	MP戻し補助SP-Bセット	1
2024-0420-01	Battery case base plate set	電池ケース台板セット	1
(2017-4216-02)	Battery contact (+)	電池接片 (+)	1
(2017-4222-02)	Battery light shield plate	電池ケース遮光板	1
2017-3010-01	Charge lever	チャージレバー	1
2017-3024-02	Winder coupler	ワインダーカプラー	1
2017-9113-01	Screw	止めねじ	1
2017-9443-04	Charge lever roller	チャージレバーローラー	1
9611-2030-01	Phillips type screw	十字穴付なべ頭小ねじ	3
9761-1730-07	Tap tite screw	十字穴付なべ頭タップタイトねじ	1
9761-2035-07	Tap tite screw	十字穴付なべ頭タップタイトねじ	2
9761-2050-07	Tap tite screw	十字穴付なべ頭タップタイトねじ	4
9761-2060-07	Tap tite screw	十字穴付なべ頭タップタイトねじ	1
9721-0200-13	E-ring	E リング	1

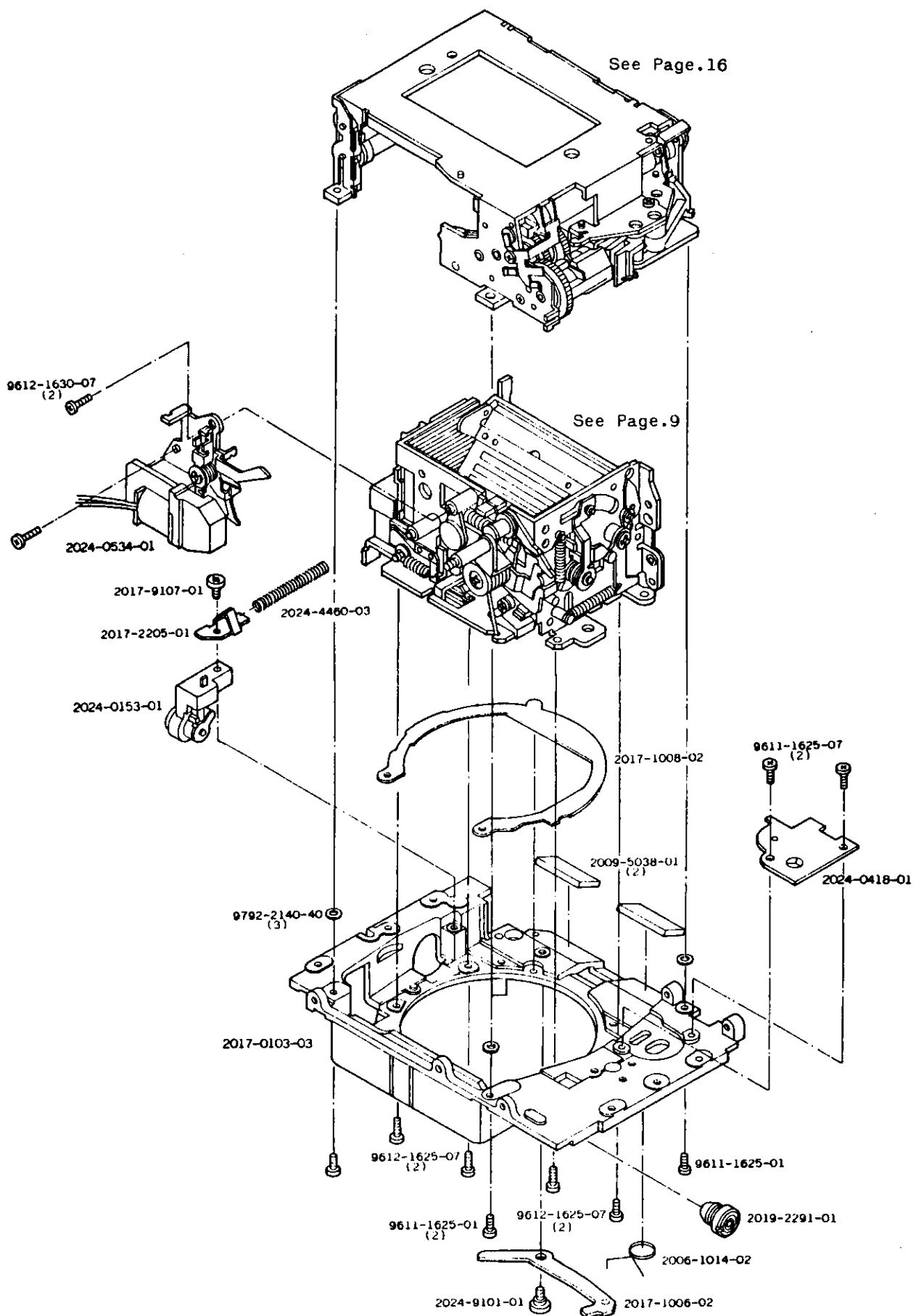
X-500 (Chrome model) **CODE No. 2024-100**



Part No.	Part Name		Qty
2017-0163-01	Aperture coupling ring set	連結リングセット	1
2017-0175-01	Lens lock button set	レンズロック釦セット	1
2024-0422-01	AV resistor plate set	AV 基板セット	1
2024-0576-01	In-finder base plate set	インファインダー台板セット	1
2024-1005-02	Front cover	前カバー	1
2017-1010-01	Bayonet lens mount	バヨネット座板	} 1
2017-1010-81	Bayonet lens mount (-0.1mm)	バヨネット座板 (-0.1mm)	
2006-1011-05	Bayonet spring	バヨネットスプリング	1
2005-1061-81	Adjustment washer-A (0.02mm)	調整ワッシャーA	} some 若干
2005-1062-81	Adjustment washer-B (0.5mm)	調整ワッシャーB	
2005-1063-81	Adjustment washer-C (0.1mm)	調整ワッシャーC	
2017-1064-02	Aperture coupling ring spring	連結リングSP	1
2017-2585-01	PV button	PV釦	1
2006-5039-01	Penta. pressure tape (per roll)	ペンタ押え板接着テープ	1
2024-5080-01	In-finder mask	インファインダーマスク	1
9611-1620-07	Phillips type screw	十字穴付なべ頭小ねじ	1
9611-1625-07	Phillips type screw	十字穴付なべ頭小ねじ	2
9611-2040-04	Phillips type screw	十字穴付なべ頭小ねじ	4
9612-1630-07	Phillips type screw	十字穴付なべ頭小ねじ	2
9612-1635-07	Phillips type screw	十字穴付なべ頭小ねじ	3

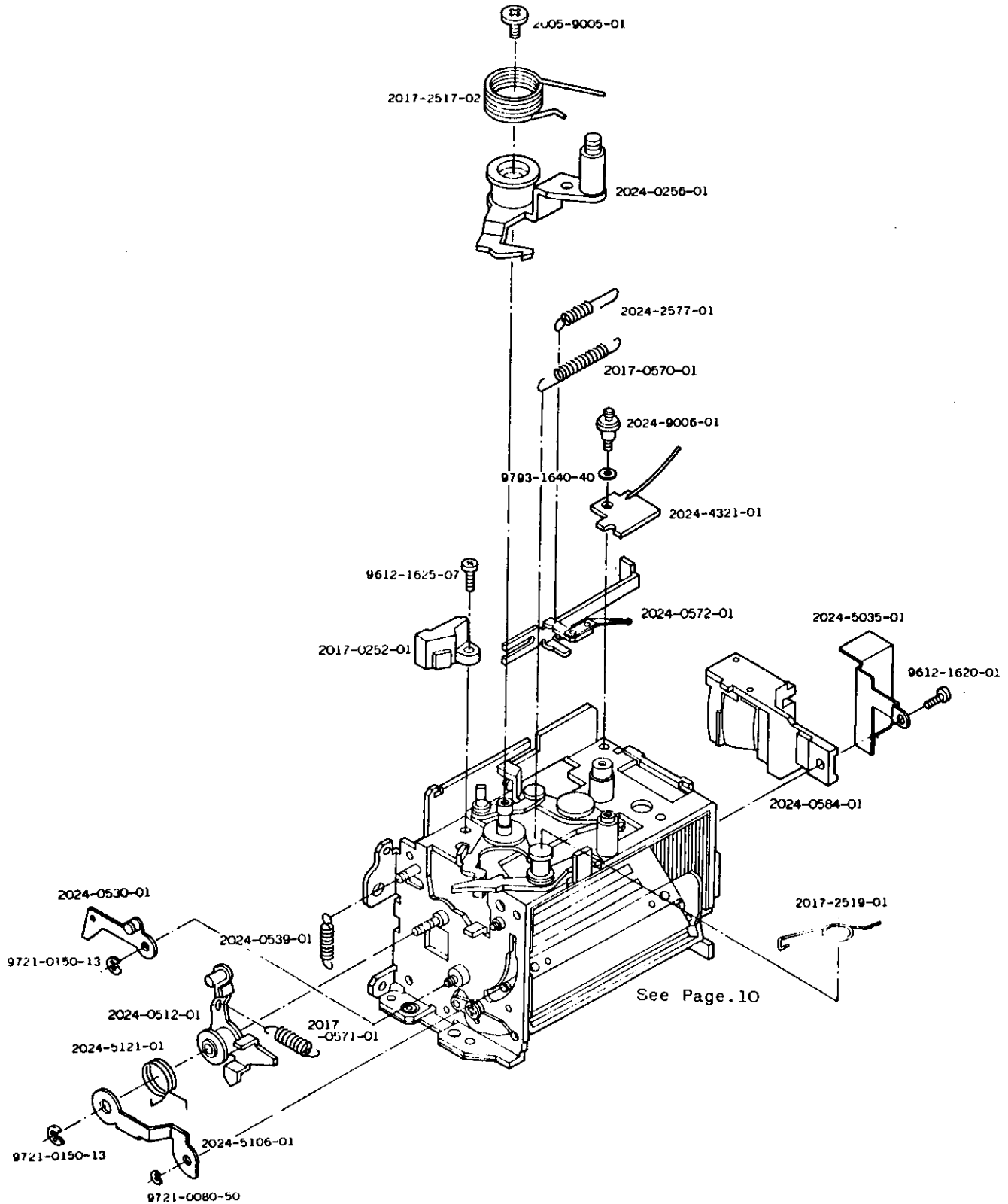
X-500 (Chrome model) **CODE No. 2024-100**

Part No.	Part Name		Qty
2017-0510-01	Fresnel lens holder set	焦点板ホルダーセット	1
(2017-5031-01)	Packing-A	防塵モルトブレンA	1
(2017-5032-02)	Packing-B	防塵モルトブレンB	1
2024-0542-01	Penta. holder set	ペンタホルダーセット	1
2024-0550-01	Penta. receiver set	ペンタ受けセット	1
2024-0583-01	Penta. prism set	ペンタプリズムセット	1
(2017-5017-01)	Penta. pressure plate	ペンタ押え板	1
(2006-5039-01)	Penta. pressure tape(per roll)	ペンタ押え板接着テープ	2
2017-5013-01	Fresnel lens holder spring	焦点板ホルダーSP	3
2017-5014-04	Penta. pressure (left side)	ペンタ押え板 (左)	1
2017-5015-02	Penta. pressrue (right side)	ペンタ押え板 (右)	1
2017-5016-02	Penta. pressure spring	ペンタ押えSP	2
2017-5018-03	L.E.D diffusion plate	LED 拡散板	1
2017-5034-01	Dustproof sheet	防塵シート	1
2024-5805-02	Fresnel lens	焦点板	1
2017-9106-02	Screw	焦点板調整ねじ	3
9762-1740-07	Tap tite screw	十字穴付なべ頭タップタイトねじ	2
9765-1740-07	Tap tite screw	十字穴付なべ頭タップタイトねじ	2

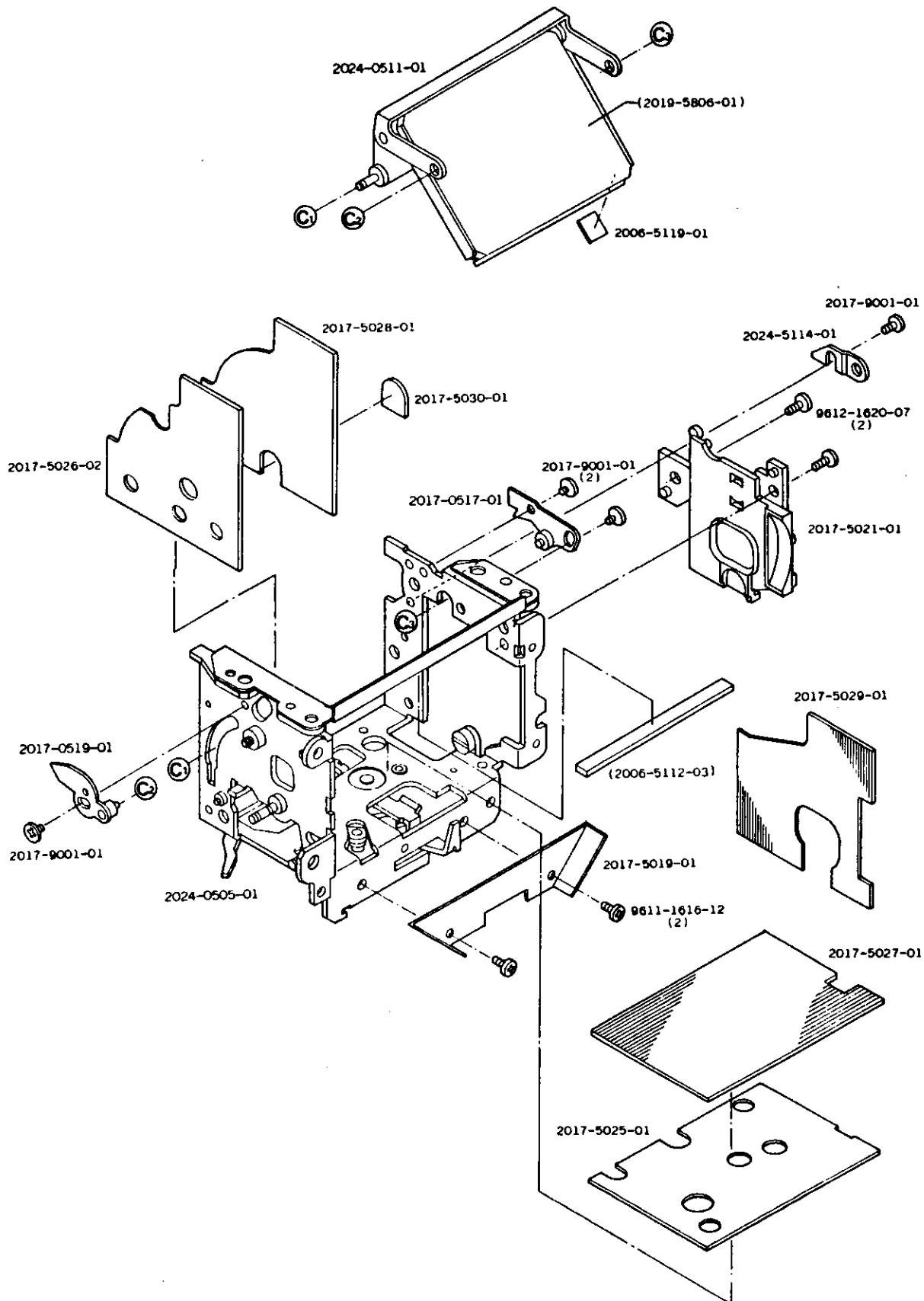
X-500 (Chrome model) **CODE No. 2024-100**


Part No.	Part Name		Qty
2017-0103-03	Front base plate set	前枠セット	1
2024-0153-01	Remote control terminal set	リモコン台板セット	1
2024-0418-01	Self-timer plate set	セルフスイッチ基板セット	1
2024-0534-01	Magnetic release base plate set	絞りストップ台板セット	1
2019-2291-01	Synchro terminal	シンクロターミナル	1
2017-1006-02	Lens lock lever	レンズロックレバー	1
2017-1008-02	Mirror box light shield plate	ミラーボックス遮光板	1
2006-1014-02	Lock lever spring	ロックレバースプリング	1
2017-2205-01	Lead wire pressure	コード押え	1
2024-4460-03	Spring	シールドSP	1
2009-5038-01	Penta. front cushion	ペンタ前面押えクッション	2
2024-9101-01	Lens lock axis	レンズロック軸	1
2017-9107-01	Screw	止めねじ	1
9611-1625-01	Phillips type screw	十字穴付なべ頭小ねじ	3
9611-1625-07	Phillips type screw	十字穴付なべ頭小ねじ	2
9612-1625-07	Phillips type screw	十字穴付なべ頭小ねじ	4
9612-1630-07	Phillips type screw	十字穴付なべ頭小ねじ	2
9792-2140-40	Washer	薄ワッシャー	3

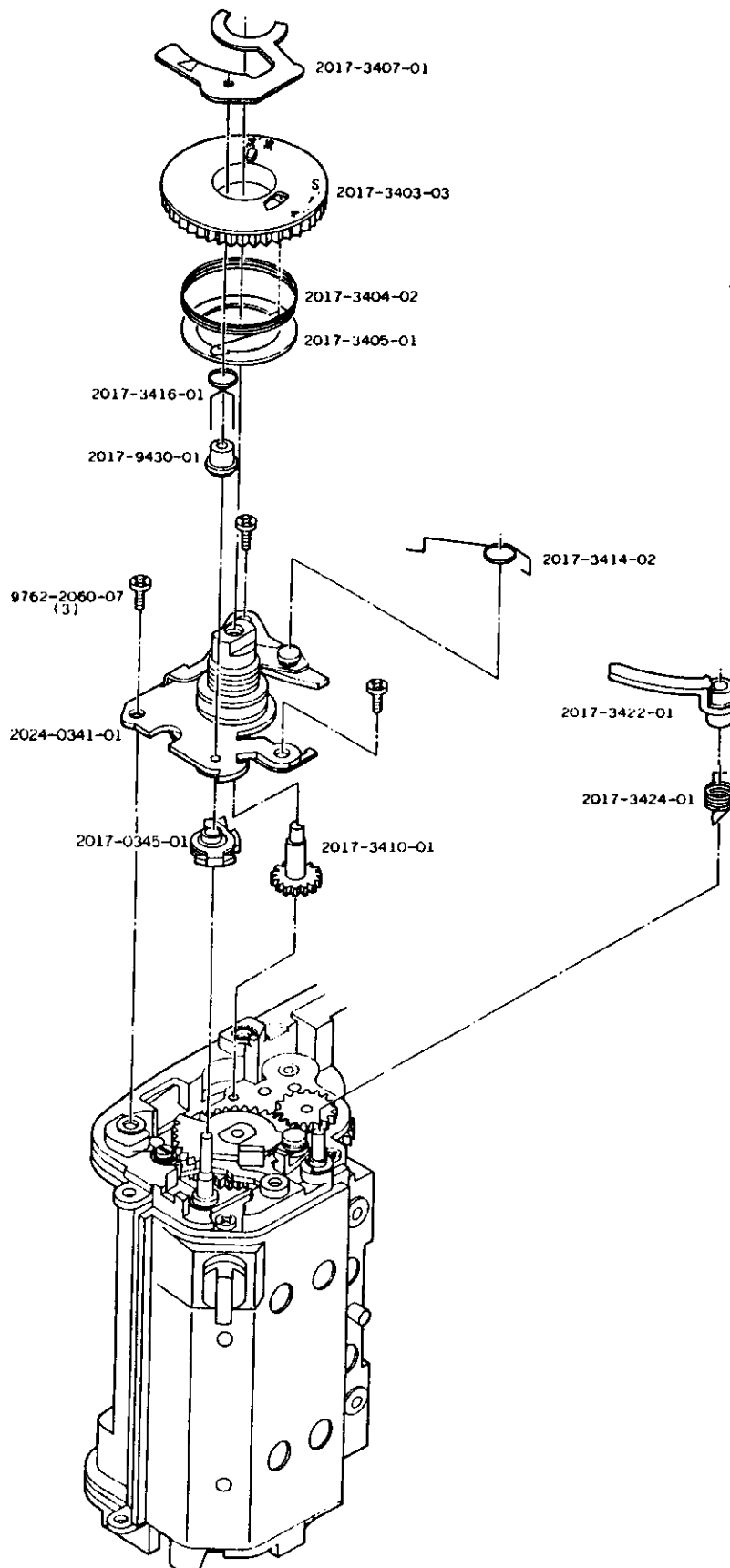
X-500 (Chrome model) **CODE No. 2024-100**



Part No.	Part Name		Qty
2017-0252-01	MP return stopper set	MP戻しストッパーセット	1
2024-0256-01	MP return lever set	MP戻しレバーセット	1
2024-0512-01	Mirror operation lever set	ミラー駆動レバーセット	1
2024-0530-01	Mirror delay lever set	ミラー遅延レバーセット	1
2024-0539-01	Mirror delay spring set	ミラー遅延SPセット	1
2017-0570-01	MP loop spring set	MPループSPセット	1
2017-0571-01	Mirror operation lever spring set	ミラー駆動SPセット	1
2024-0572-01	PV lever set	PVレバーセット	1
2024-0584-01	Light receptor set	受光ホルダーセット	1
2017-2517-02	MP return spring	MP戻しSP	1
2017-2519-01	MP return stop lever spring	MP戻し係止レバーSP	1
2024-2577-01	PV lever spring	PVレバーSP	1
2024-4321-01	PV plate	PV基板	1
2024-5035-01	Shading plate	ノイズ遮蔽板	1
2024-5106-01	Mirror operation lever-B	ミラー操作レバーB	1
2024-5121-01	Mirror operation lever-B spring	ミラー押えSP	1
2005-9005-01	Screw	MP戻しレバー押えねじ	1
2024-9006-01	PV guide axis	PVガイド軸A	1
9612-1620-01	Phillips type screw	十字穴付なべ頭小ねじ	1
9612-1625-07	Phillips type screw	十字穴付なべ頭小ねじ	1
9721-0080-50	E-ring	Eリング	1
9721-0150-13	E-ring	Eリング	2
9793-1640-40	Washer	薄ワッシャー	1

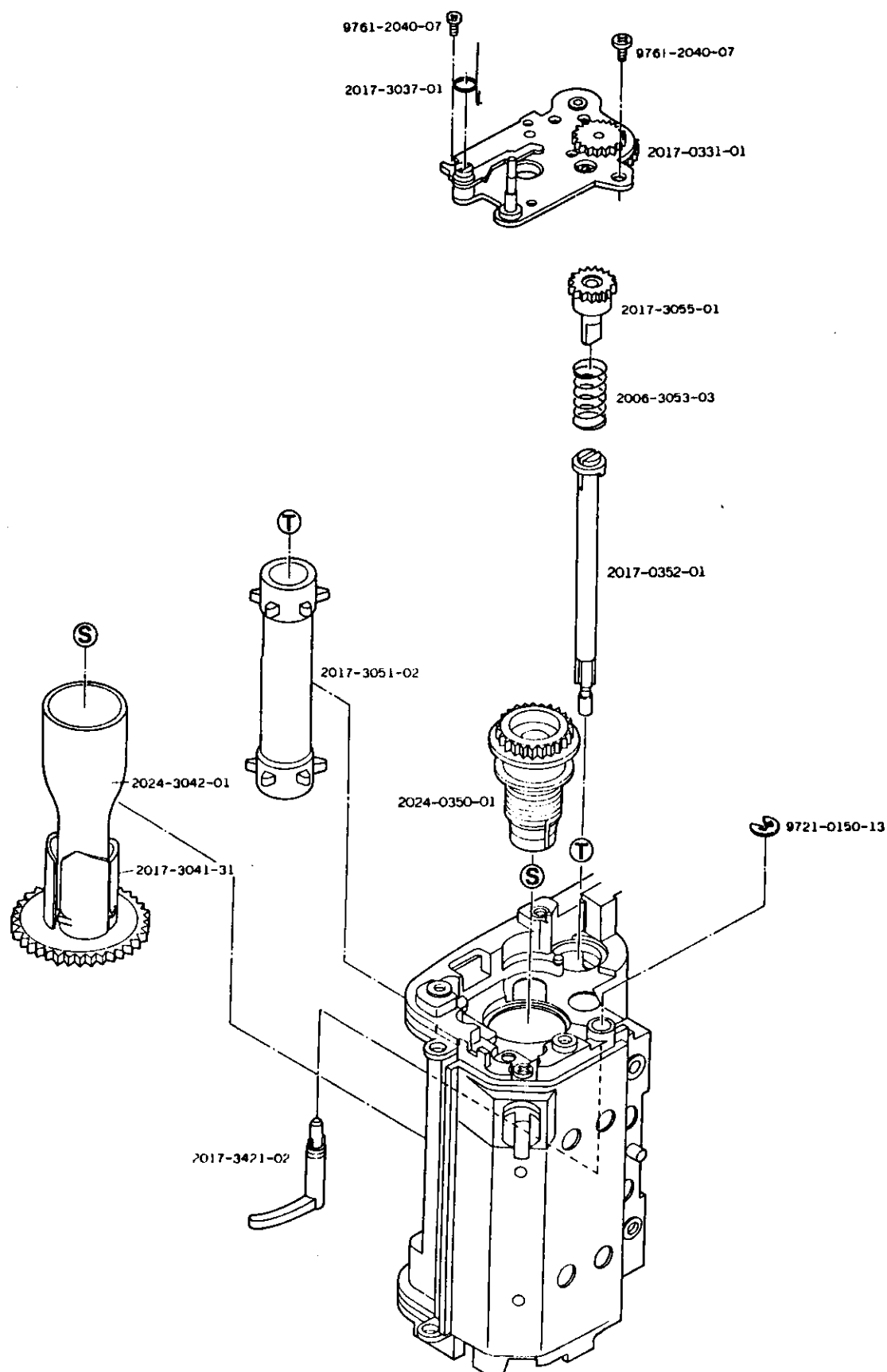
X-500 (Chrome model) **CODE No. 2024-100**

Part No.	Part Name		Qty
2024-0505-01	Mirror box set	ミラーボックスセット	1
(2006-5112-03)	Mirror cushion	ミラークッション	1
2024-0511-01	Mirror holder set	ミラーホルダーセット	1
(2019-5806-01)	Mirror	ミラー	1
2017-0517-01	Mirror adjustment plate-B set	ミラー調整板Bセット	1
2017-0519-01	Mirror adjustment plate-A set	ミラー調整板Aセット	1
2017-5019-01	Mirror box apron	ミラーボックスエプロン	1
2017-5021-01	Mirror box side plate	ミラーボックス側板	1
2017-5025-01	Flare shield bottom plate	フレアー防止シート下板	1
2017-5026-02	Flare shield right plate	フレアー防止シート右板	1
2017-5027-01	Flare shield bottom plate-A	フレアー防止シート下	1
2017-5028-01	Flare shield right plate-A	フレアー防止シート右A	1
2017-5029-01	Flare shield left plate	フレアー防止シート左	1
2017-5030-01	Flare shield right plate-B	フレアー防止シート右B	1
2024-5114-01	Mirror support stopper	ミラー補助ストッパーB	1
2006-5119-01	Mirror stopper gum	ミラーストッパーゴム	1
2017-9001-01	Screw	調整板押えビス	4
9611-1616-12	Phillips type screw	十字穴付なべ頭小ねじ	2
9612-1620-07	Phillips type screw	十字穴付なべ頭小ねじ	2

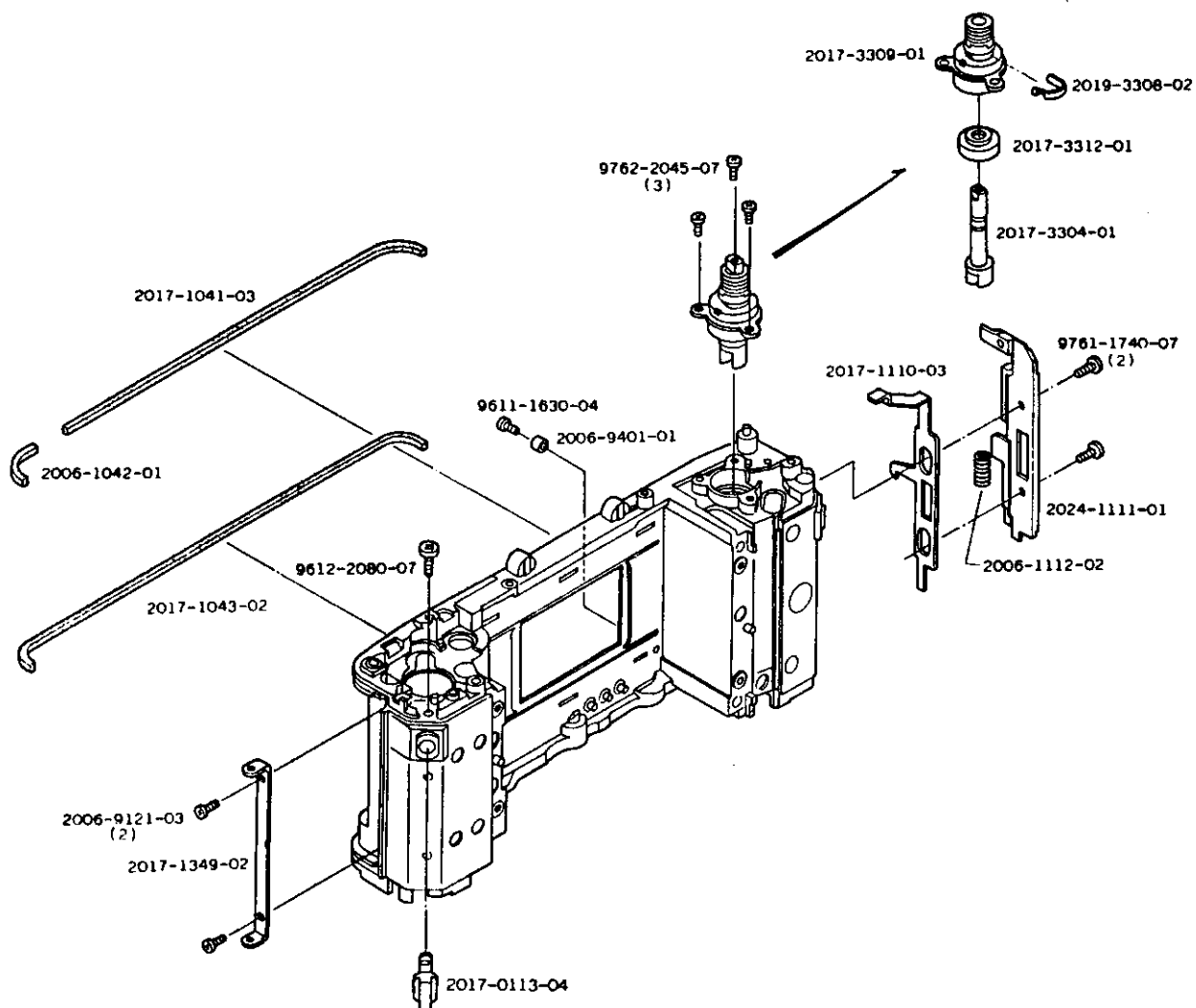
X-500 (Chrome model) **CODE No. 2024-100**

Part No.	Part Name		Qty
2024-0341-01	Winding base plate-B set	巻取台板Bセット	1
2017-0345-01	Winding operation lever set	トンボ返りレバーセット	1
2017-3403-03	Counter dial	カウンターラチェット	1
2017-3404-02	Counter return spring	カウンター戻しSP	1
2017-3405-01	Washer	カウンター補助ワッシャー	1
2017-3407-01	Counter index	カウンター指標板	1
2017-3410-01	Counter operation gear	フィルムカウンターギヤー	1
2017-3414-02	Return spring	カウンターレバー操作SP	1
2017-3416-01	Winding operation lever spring	トンボ返りレバーSP	1
2017-3422-01	Safe loading signal lever	フィルム表示レバー	1
2017-3424-01	S.L.S lever spring	SLS 駆動SP	1
2017-9430-01	Collar	カウンター指標カラー	1
9762-2060-07	Tap tite screw	十字穴付なべ頭タップタイトねじ	

Part No.	Part Name		Qty
2017-0307-01	Charge operation plate set	チャージ操作板セット	1
(2017-3066-01)	Stopper	巻上ストッパーゴム	1
2017-0308-01	Shutter charge gear-D set	シャッターチャージギヤーDセット	1
2017-0310-01	Winding shaft receiver set	巻取下軸受セット	1
2017-0312-01	Winding stop lever-A set	巻止めレバーAセット	} 1
2017-0322-01	Winding stop lever-A set	巻止めレバーAセット	
2017-0328-01	Gear-C base plate set	ギヤーC台板セット	1
2017-0338-01	Winding shaft set	巻取操作板セット	1
2006-3009-01	Return spring	戻しSP	1
2017-3020-01	Reset lever	リセットレバー	1
2017-3021-02	Reset lever spring	リセットレバーSP	1
2017-3025-01	Reset lever support spring	リセットレバー補助SP	1
2017-3026-01	Contact-A (S4)	S4 接片A	1
2017-3027-01	Contact-B (S4)	S4 接片B	1
2017-3032-01	Winding gear	巻取ギヤー	1
2006-3040-01	Winding claw spring	巻取爪SP	1
2017-3048-01	Over-run stop lever spring	オーバーラン防止レバーSP	1
2017-3056-01	R button lock spring	R釦ロックばね	1
2017-3057-02	Sprocket receiver	スプロケット軸受	1
2017-3058-01	Collar	巻取下軸受補助カラー	1
2017-3065-06	Stopper	チャージ操作板ストッパー	1
2017-9011-03	Screw	巻止めレバー軸	1
2017-9012-01	Screw	巻止軸受止めねじ	1
2017-9108-02	Screw	チャージ板押えビス	1
2017-9441-02	Collar	巻止めレバーカラー	1
9612-1632-12	Phillips type screw	十字穴付なべ頭小ねじ	1
9761-1725-07	Tap tite screw	十字穴付なべ頭タップタイトねじ	1
9762-2040-07	Tap tite screw	十字穴付なべ頭タップタイトねじ	1
9792-2140-40	Washer	薄ワッシャー	1

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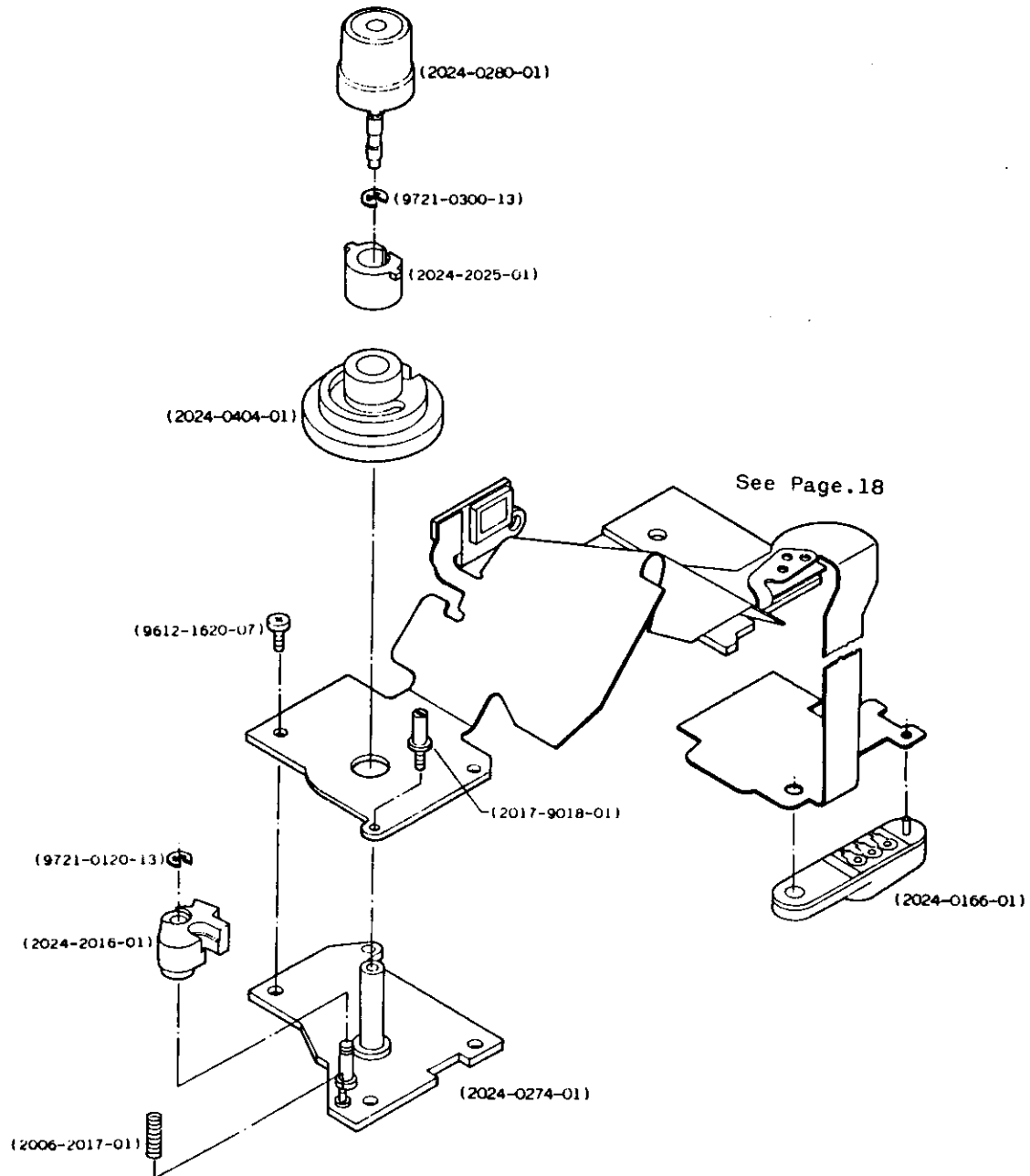
Part No.	Part Name		Qty
2017-0331-01	Winding base plate-A set	巻取台板Aセット	1
2024-0350-01	Spool friction gear set	スプールフリクションギヤーセット	1
2017-0352-01	Sprocket shaft set	スプロケット軸セット	1
2017-3037-01	Reversion stop lever spring	逆転止めレバーSP	1
2017-3041-31	Spool	スプール	1
2024-3042-01	Spool inner barrel	スプール内筒	1
2017-3051-02	Sprocket	スプロケット	1
2006-3053-03	R button release spring	R釦解除スプリング	1
2017-3055-01	Sprocket gear	スプロケットギヤー	1
2017-3421-02	Film indication filler	フィルム表示ファイラー	1
9761-2040-07	Tap tite screw	十字穴付なべ頭タップタイトねじ	2
9721-0150-13	E-ring	E リング	1

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Part No.	Part Name		Qty
2017-0113-04	Strap hanger set	吊環セット	1
2017-1041-03	Light shield packing-A	遮光パッキンA	1
2006-1042-01	Light shield packing-B	遮光パッキンB	1
2017-1043-02	Light shield packing-C	遮光パッキンC	1
2017-1110-03	Back cover lock lever	裏蓋ロックレバー	1
2024-1111-01	Lock cover	ロックカバー	1
2006-1112-02	Back cover lock spring	裏蓋ロックスプリング	1
2017-1349-02	Hinge	ヒンジ	1
2017-3304-01	Rewinding fork	巻戻しフオーク	1
2019-3308-02	Rewinding friction spring	巻戻しフリクションスプリング	1
2017-3309-01	Rewinding axis receiver	巻戻し軸受	1
2017-3312-01	Light shield collar	巻戻し遮光カラー	1
2006-9121-03	Screw	止めねじ	2
2006-9401-01	Film guide collar	フィルムガイドカラー	1
9611-1630-04	Phillips type screw	十字穴付なべ頭小ねじ	1
9612-2080-07	Phillips type screw	十字穴付なべ頭小ねじ	1
9761-1740-07	Tap tite screw	十字穴付なべ頭タップタイトねじ2	
9762-2045-07	Tap tite screw	十字穴付なべ頭タップタイトねじ3	

X-500 (Chrome model) **CODE No. 2024-100**

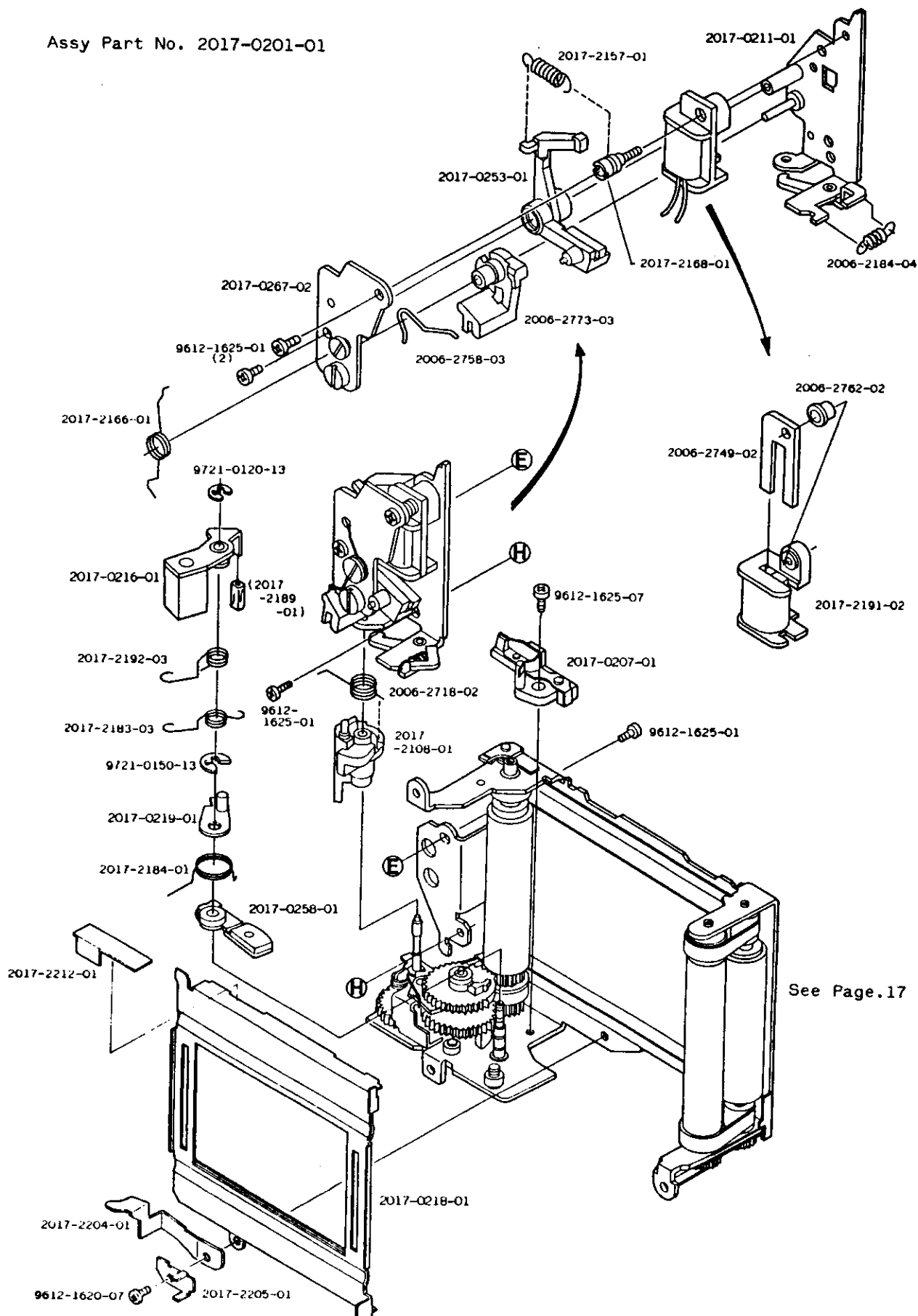
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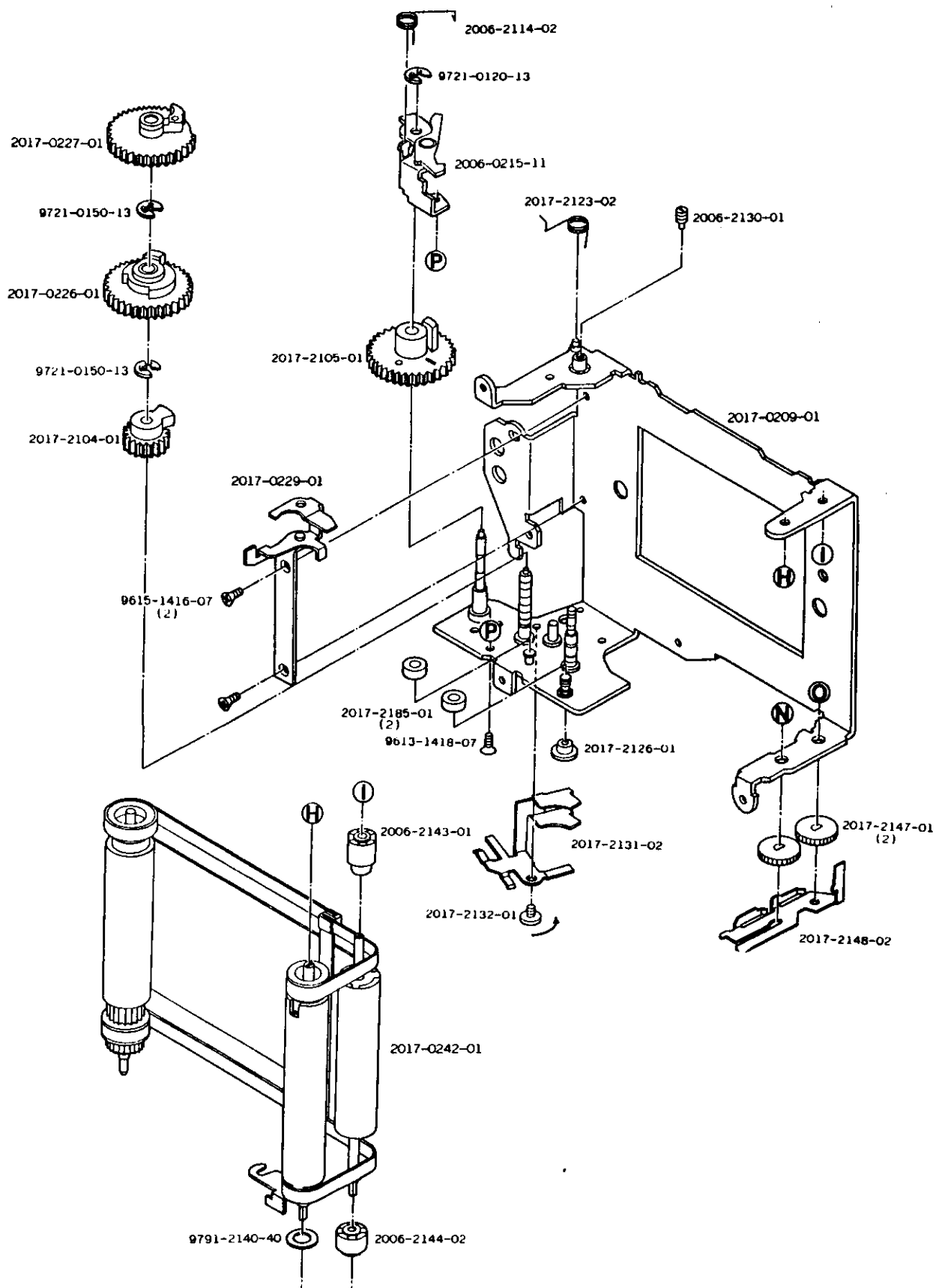
Part No.	Part Name		Qty
2024-0401-01	Flexible P.C. board set	フレキシブル基板セット	1
(2024-0166-01)	Motor drive connect holder set	モータードライブ接点ホルダー セット	1
(2024-0274-01)	Shutter speed dial base plate set	シャッターダイヤル台板セット	1
(2024-0280-01)	Operating button set	シャッター釦セット	1
(2024-0404-01)	TV contact set	TV 接片セット	1
(2024-2016-01)	Auto lock plate	オートロック板	1
(2006-2017-01)	Auto lock spring	オートロックばね	1
(2024-2025-01)	Operating button receiver	シャッター釦受け	1
(2017-9018-01)	Auto lock plate guide	オートロック板ガイド	1
(9612-1620-07)	Phillips type screw	十字穴付なべ頭小ねじ	1
(9721-0120-13)	E-ring	E リング	1
(9721-0300-13)	E-ring	E リング	1

X-500 (Chrome model) CODE No. 2024-100

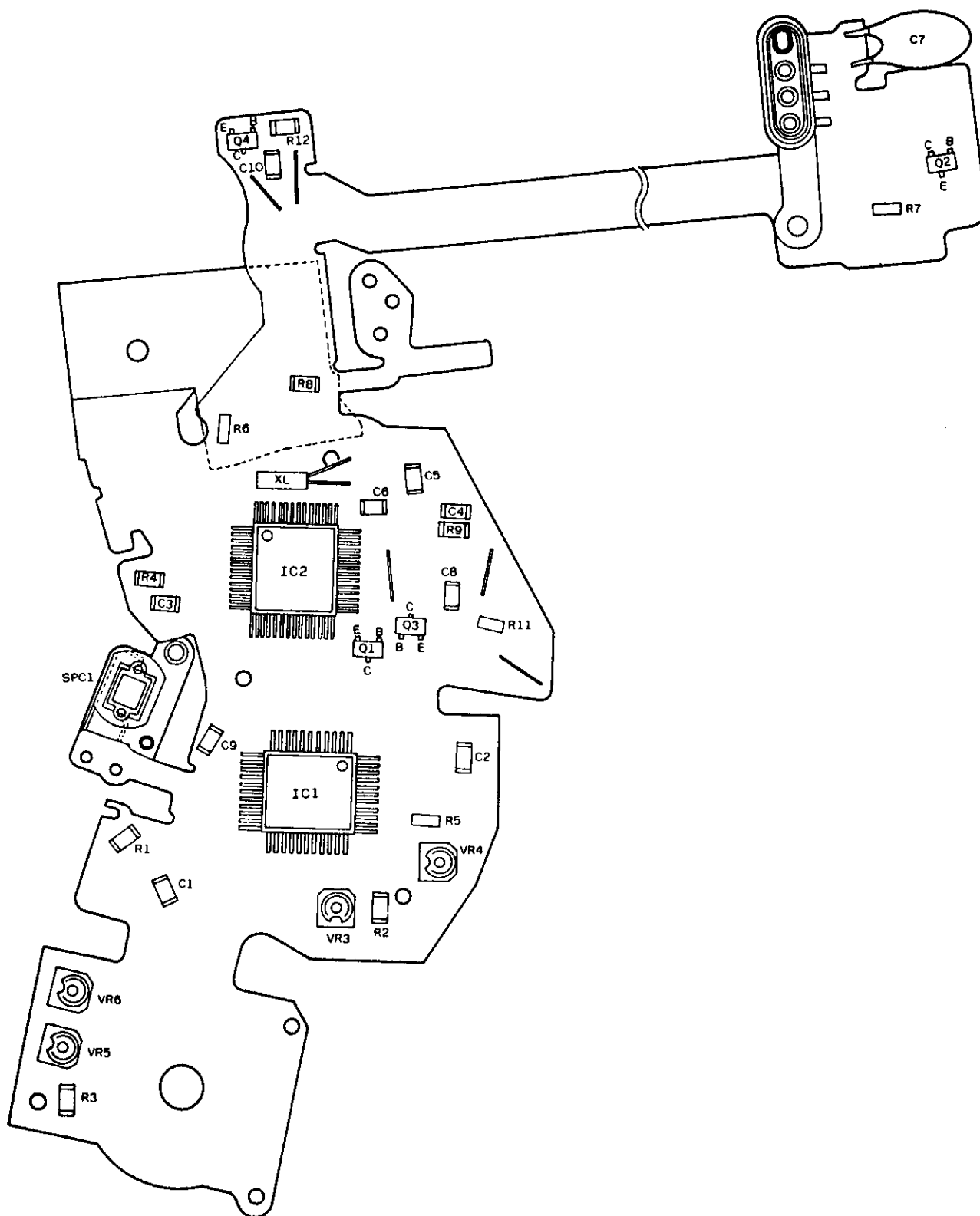
Assy Part No. 2017-0201-01



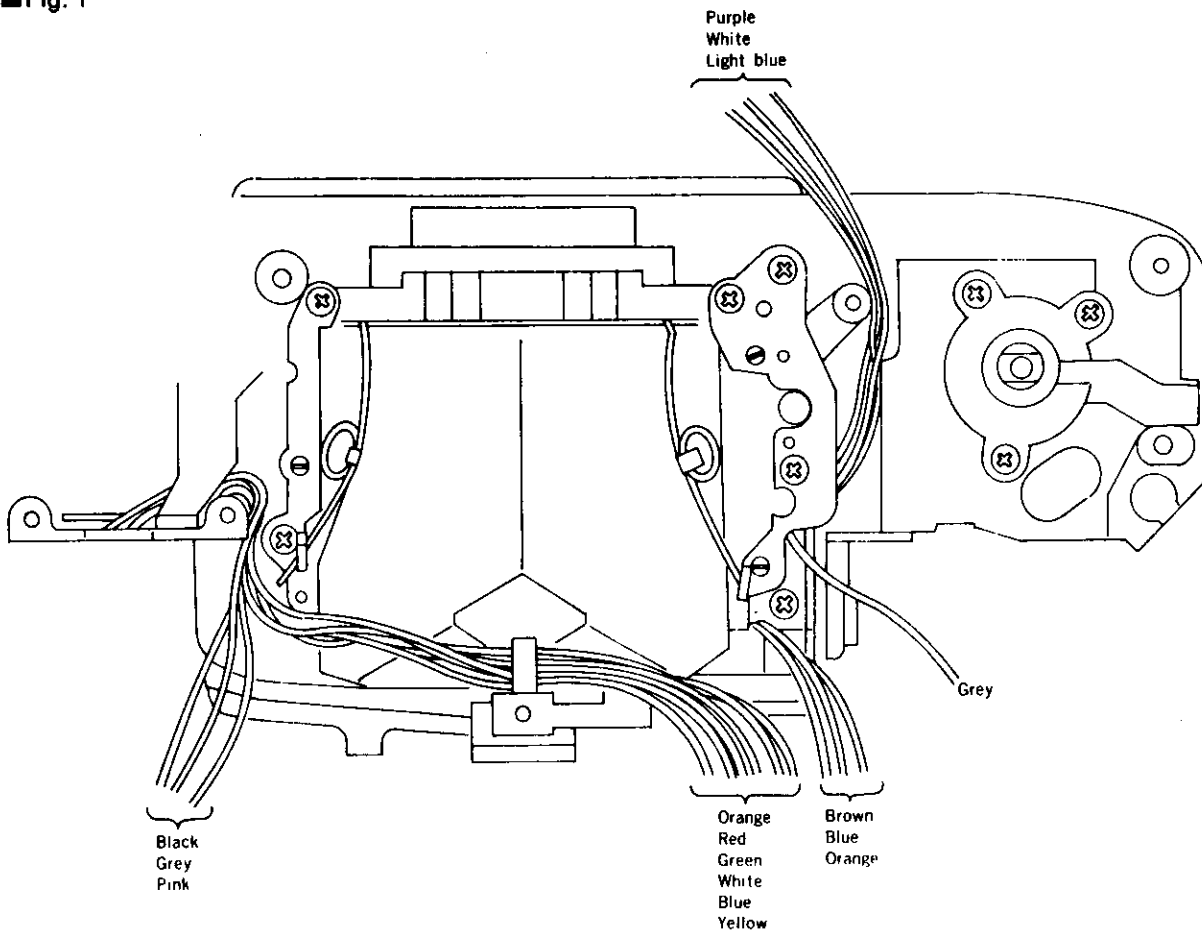
Part No.	Part Name		Qty 16
2017-0201-01	Shutter block	シャッターブロック	1
2017-0207-01	X contact plate set	X 接片セット	1
2017-0211-01	Control base plate set	制御台板セット	1
2017-0216-01	2nd. curtain brake lever set	二幕ブレーキレバーセット	1
(2017-2189-01)	Isolation tube	X 接片絶縁チューブ	1
2017-0218-01	Shutter cover plate set	シャッターカバー板セット	1
2017-0219-01	1st. curtain support lever set	一幕ブレーキ補助レバーセット	1
2017-0253-01	2nd. curtain release lever set	二幕解除レバーセット	1
2017-0258-01	1st. curtain brake lever set	一幕ブレーキレバーセット	1
2017-0267-02	Wiring base plate set	Mag. 配線基板セット	1
2017-2108-01	Control cam	制御カム	1
2017-2157-01	2nd. curtain release lever spring	二幕解除レバースプリング	1
2017-2166-01	Trigger contact	トリガー接片	1
2017-2168-01	Screw	トリガー基板取付ねじ	1
2017-2183-03	1st. curtain brake spring-B	一幕ブレーキスプリング B	1
2006-2184-04	Control cam stop lever spring	制御カム係止レバースプリング	1
2017-2184-01	1st. curtain brake spring-A	一幕ブレーキスプリング A	1
2017-2191-02	Shutter magnet bobbin	シャッターマグネットボビン	1
2017-2192-03	2nd. curtain brake spring-A	二幕ブレーキスプリング A	1
2017-2204-01	Ribbon guide plate-B	幕リボンガイド板 B	1
2017-2205-01	Lead wire pressure	リード線押え	1
2017-2212-01	Shutter light shield plate	シャッター遮光シート	1
2006-2718-02	Control cam operation spring	制御カム駆動スプリング	1
2006-2749-02	Shutter magnet core	シャッターマグネット鉄芯	1
2006-2758-03	Over charge spring	吸着片オーバーチャージスプリング	1
2006-2762-02	Magnet collar	マグネット取付カラー	1
2006-2773-03	Trigger contact operation lever	トリガー接片作動レバー	1
9612-1620-07	Phillips type screw	十字穴付なべ頭小ねじ	1
9612-1625-01	Phillips type screw	十字穴付なべ頭小ねじ	4
9612-1625-07	Phillips type screw	十字穴付なべ頭小ねじ	1
9721-0120-13	E-ring	E リング	1
9721-0150-13	E-ring	E リング	1

X-500 (Chrome model) **CODE No. 2024-100**


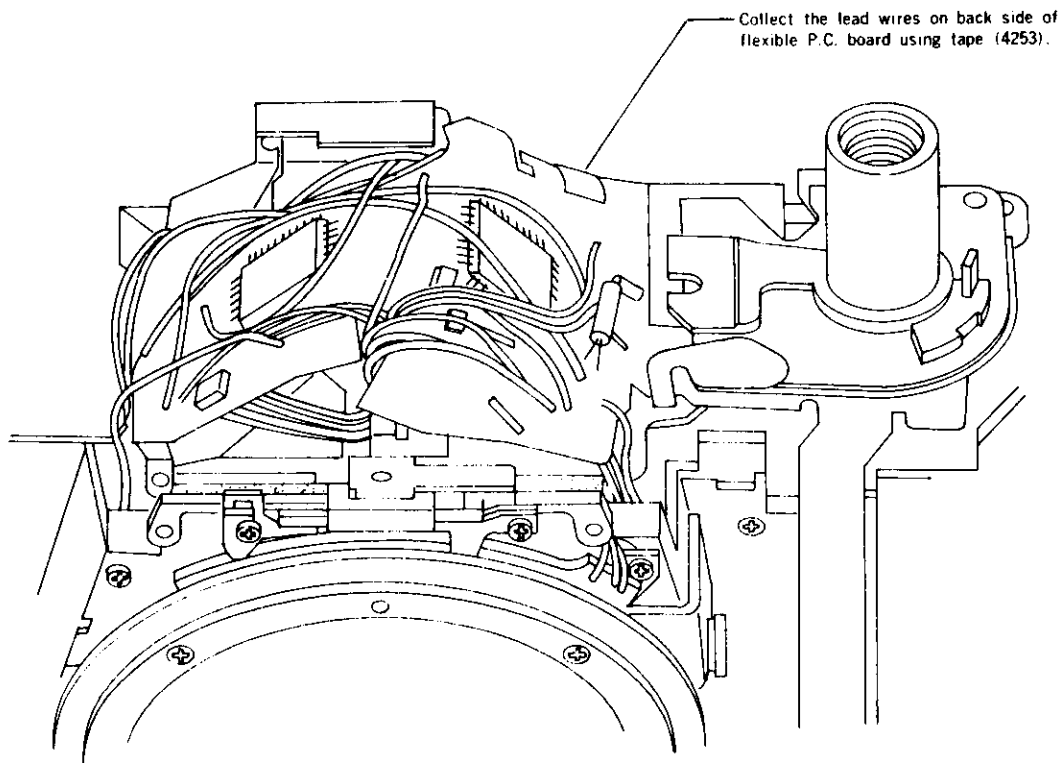
Part No.	Part Name		Qty
2017-0209-01	Shutter base plate set	シャッター台板セット	1
2006-0215-11	1st. curtain stop lever set	一幕係止レバーセット	1
2017-0226-01	1st. curtain shutter gear set	一幕シャッターギヤーセット	1
2017-0227-01	2nd. curtain shutter gear set	二幕シャッターギヤーセット	1
2017-0229-01	2nd. curtain stop lever set	二幕係止レバーセット	1
2017-0242-01	Shutter curtain set	シャッター幕セット	1
2017-2104-01	Charge gear-B	チャージギヤーB	1
2017-2105-01	Charge gear-A	チャージギヤーA	1
2006-2114-02	1st. curtain stop lever spring	一幕係止レバースプリング	1
2017-2123-02	2nd. curtain stop lever spring	二幕係止レバースプリング	1
2017-2126-01	Curtain shaft receiver-B	幕軸受B	1
2006-2130-01	Adjusting screw	幕軸調整ビス	1
2017-2131-02	Ribbon guide plate	幕リボンガイド板	1
2017-2132-01	Screw	幕リボンガイド板止めねじ	1
2006-2143-01	2nd. curtain roller-A	二幕ローラーA (上)	1
2006-2144-02	2nd. curtain roller-B	二幕ローラーB (下)	1
2017-2147-01	Ratchet	SP筒軸止めラチェット	2
2017-2148-02	Ratchet stop spring	ラチェット止めばね	1
2017-2185-01	Brake stopper	ブレーキストッパー	2
9613-1418-07	Phillips type screw	十字穴付皿頭小ねじ	1
9615-1416-07	Phillips type screw	十字穴付皿頭小ねじ	2
9721-0120-13	E-ring	E リング	1
9721-0150-13	E-ring	E リング	2
9791-2140-40	Washer	薄ワッシャー	1

X-500 (Chrome model) **CODE No. 2024-100**

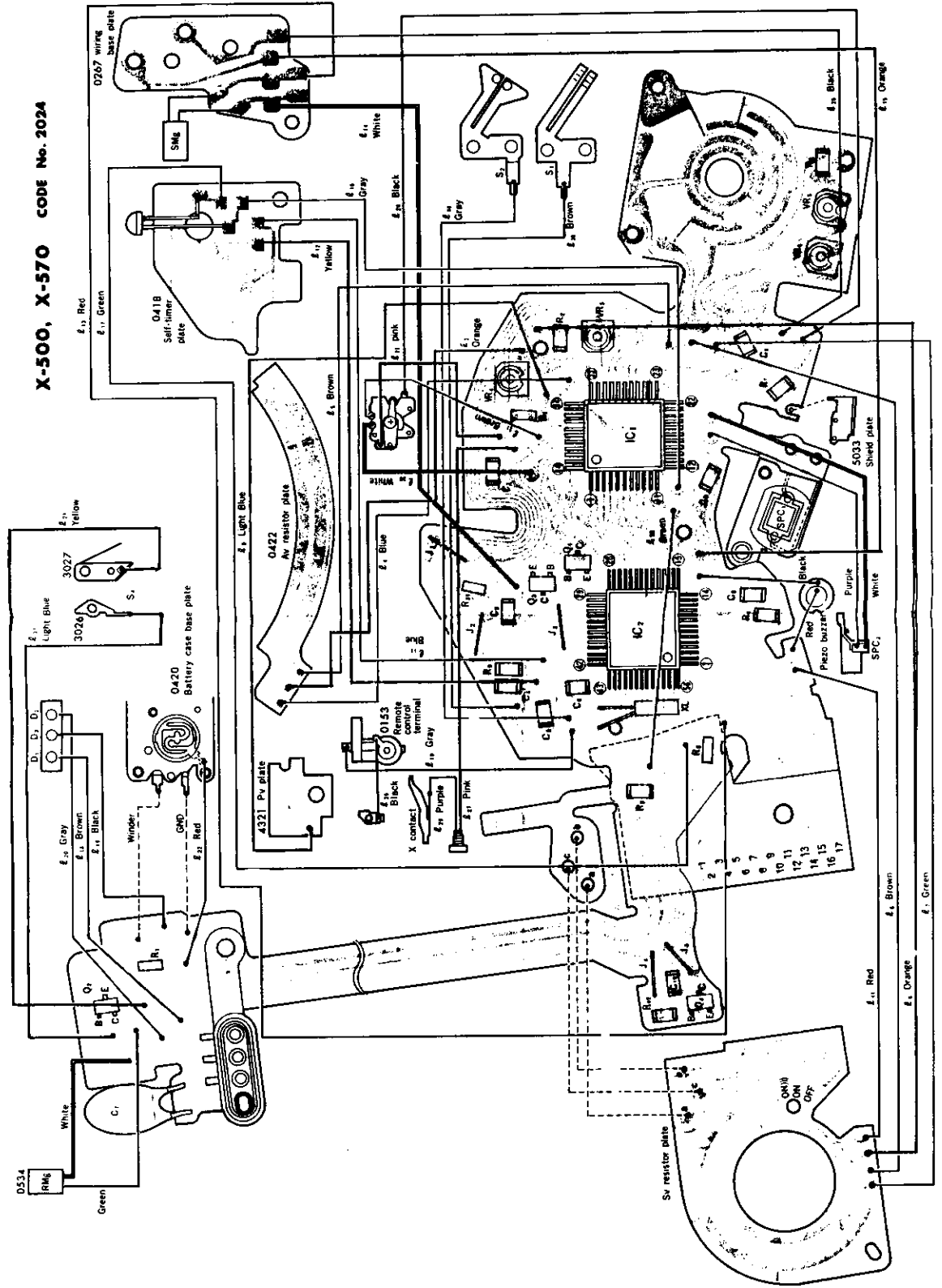
■ Fig. 1



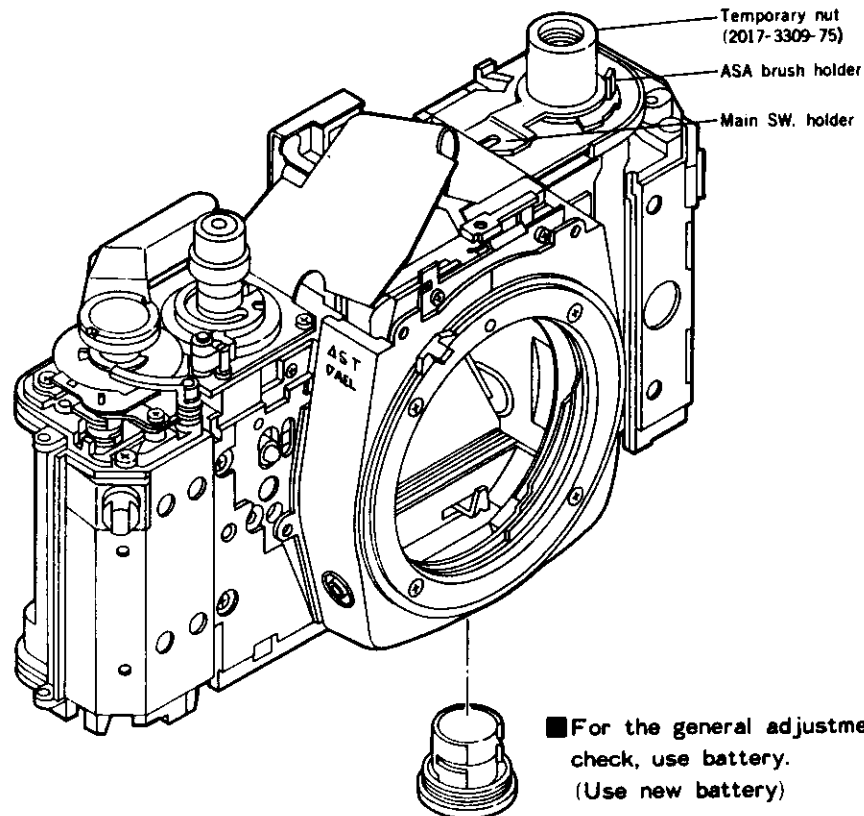
■ Fig. 2



X-500, X-570 CODE No. 2024



■ Preparation for adjustments



■ Body back adjustment

- Measuring instruments : Body back gauge
: Flat plate (for 2005)
: Dial gauge

■ Adjustment procedure

Check and correct the flatness of the pressure plate contact surface before measuring the body back.

[Standard]

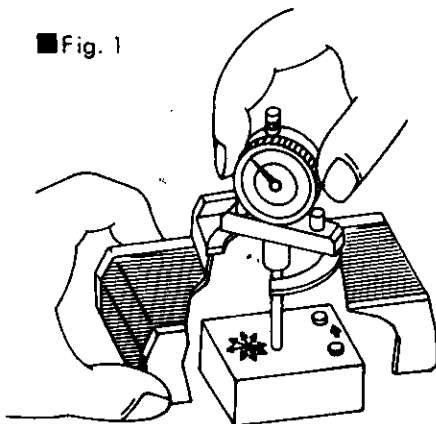
43.72 $\begin{matrix} +0.01 \\ -0.02 \end{matrix}$ mm

- If the body back is lower than the standard value, insert adjusting washers under the bayonet mount.

[Types of adjusting washers]

Part No.	2005-1061-81	2005-1062-81	2005-1063-81
Thickness (mm)	0.02	0.05	0.1

■ Fig. 1



- If the body back is higher than the standard value, replace the bayonet mount with the bayonet mount used for repair (2017-1010-81) and adjust in combination with the adjusting washers.
The flange of the bayonet mount used for repair is 0.1 mm thinner than that of the regular bayonet mount (2017-1010-01).

Lead wires list

Symbol	Part No.	Color	Typ.	Qty.
ℓ 3	9391-0507-03	Orange	φ0.05/7 wires ℓ=70	1
ℓ 4	9391-0507-06	Blue	φ0.05/7 wires ℓ=70	1
ℓ 5	9391-0507-01	Brown	φ0.05/7 wires ℓ=75	1
ℓ 6	9391-0507-01	Brown	φ0.05/7 wires ℓ=85	1
ℓ 7	9391-0507-05	Green	φ0.05/7 wires ℓ=90	1
ℓ 8	9391-0507-03	Orange	φ0.05/7 wires ℓ=95	1
ℓ 9	9391-0807-11	Light Blue	φ0.08/7 wires ℓ=135	1
ℓ 10	9391-0807-08	Gray	φ0.08/7 wires ℓ=40	1
ℓ 11	9391-0807-06	Blue	φ0.08/7 wires ℓ=95	1
ℓ 12	9391-0807-04	Yellow	φ0.08/7 wires ℓ=95	1
ℓ 13	9391-0807-02	Red	φ0.08/7 wires ℓ=105	1
ℓ 14	9391-0807-09	White	φ0.08/7 wires ℓ=75	1
ℓ 15	9391-0807-03	Orange	φ0.08/7 wires ℓ=105	1
ℓ 16	9391-0807-08	Gray	φ0.08/7 wires ℓ=65	1
ℓ 17	9391-0807-05	Green	φ0.08/7 wires ℓ=115	1
ℓ 18	9391-0807-01	Brown	φ0.08/7 wires ℓ=40	1
ℓ 19	9391-0807-00	Black	φ0.08/7 wires ℓ=35	1
ℓ 20	9391-0807-08	Gray	φ0.08/7 wires ℓ=55	1
ℓ 21	9391-0807-04	Yellow	φ0.08/7 wires ℓ=160	1
ℓ 22	9391-0807-02	Red	φ0.08/7 wires ℓ=25	1
ℓ 25	9391-0807-00	Black	φ0.08/7 wires ℓ=50	1
ℓ 26	9391-0807-00	Black	φ0.08/7 wires ℓ=80	1
ℓ 27	9391-0807-10	Pink	φ0.08/7 wires ℓ=80	1
ℓ 28	9391-0807-10	Pink	φ0.08/7 wires ℓ=50	1
ℓ 29	9391-0807-07	Purple	φ0.08/7 wires ℓ=65	1
ℓ 30	9391-0807-09	White	φ0.08/7 wires ℓ=65	1
ℓ 31	9391-0807-01	Brown	φ0.08/7 wires ℓ=70	1
ℓ 32	9391-0807-05	Green	φ0.08/7 wires ℓ=35	1
ℓ 35	9391-0807-01	Brown	φ0.08/7 wires ℓ=70	1
ℓ 36	9391-0807-08	Gray	φ0.08/7 wires ℓ=70	1
ℓ 37	9391-0807-11	Light Blue	φ0.08/7 wires ℓ=170	1
ℓ 39	9391-0507-00	Black	φ0.05/7 wires ℓ=25	1
ℓ 41	9391-0507-02	Red	φ0.05/7 wires ℓ=40	1

Above lead wires must be ordered in lengths rounded to nearest meter.
 上記リード線の供給は、1m 単位とします。

REPAIR

■ The contents of this manual are mainly related to the assembly and adjustment procedures for the 2024.

■ Since the procedures mentioned in this manual are for assembly they should be followed in reverse for disassembly.

■ Description of symbols

- **G** : Grease used & part greased
- **O** : Oil used & part oiled
- **B** : Adhesive used & part adhered
- **T** : Tool used & tool number

■ Assembly and adjustment procedures

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■ Adjustment and checks to be made

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■ Finder back adjustment	20
■ Mirror angle adjustment	39
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■ Precautions

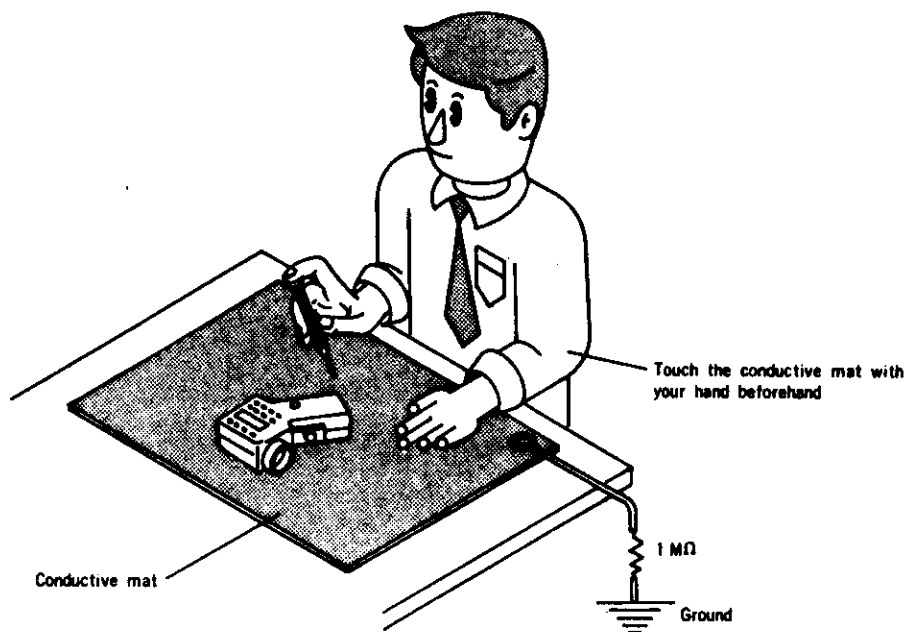
■ The following precautions must be taken concerning all plastic parts.

1. When cleaning, use Flonsolve or alcohol. Do not use thinner, ketone, ether, etc.
2. Secure all parts with the specified screws, taking care not to exert excessive stress to them.

■ Handling of the flexible board

The flexible board uses MOS ICs and is very sensitive to static electricity. Therefore, the following points must be kept in mind when repairing.

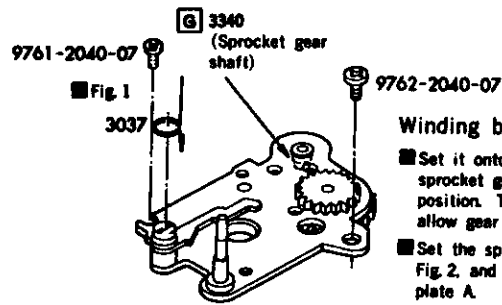
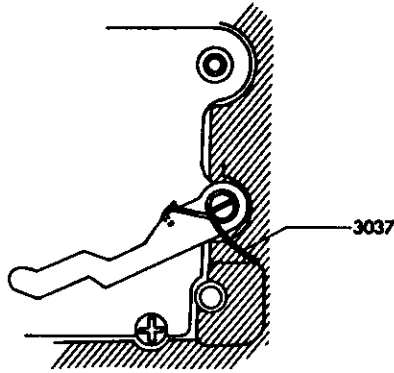
- When handling the flexible board itself or wiring it to the body, use a conduction mat to prevent static electricity, and perform all work as shown in the illustration below.



- When grounding is impossible, connect the cable to a large metal plate (steel desk or shelf).

1 Spool, sprocket, winding base plate A

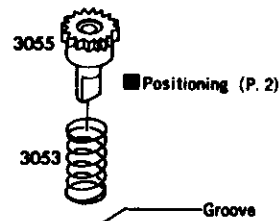
■ Fig. 1 3037 spring setting



Winding base plate A

■ Set it onto the body with the sprocket gear (3055) in position. Take care not to allow gear disengagement.

■ Set the sprocket as shown in Fig. 2, and fit winding base plate A.



■ Positioning (P. 2)

Sprocket shaft

Engage with the sprocket clutch, keeping the groove parallel with the body. The bottom claws must be as shown below.

Toward film side

■ Fig. 3 9721-0150-13

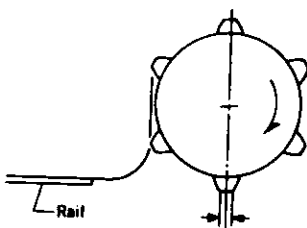
■ Fig. 3 Installing direction of E-ring

Push completely



Lens side

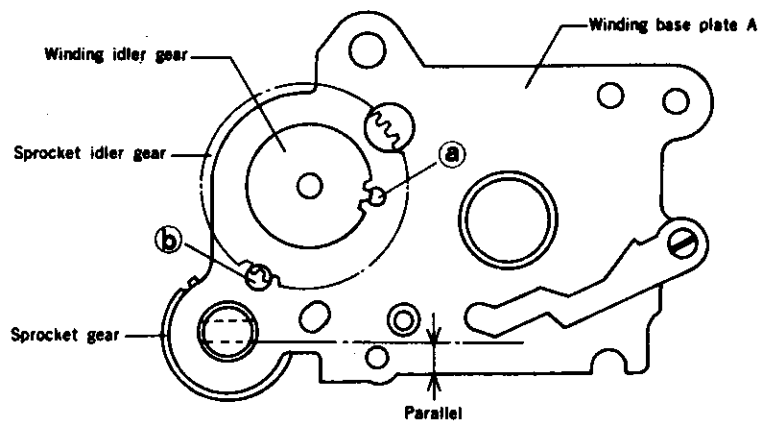
■ Fig. 2



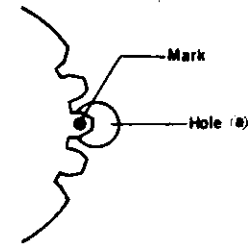
3421

■ Sprocket gear positioning procedure

■ Fig. 1



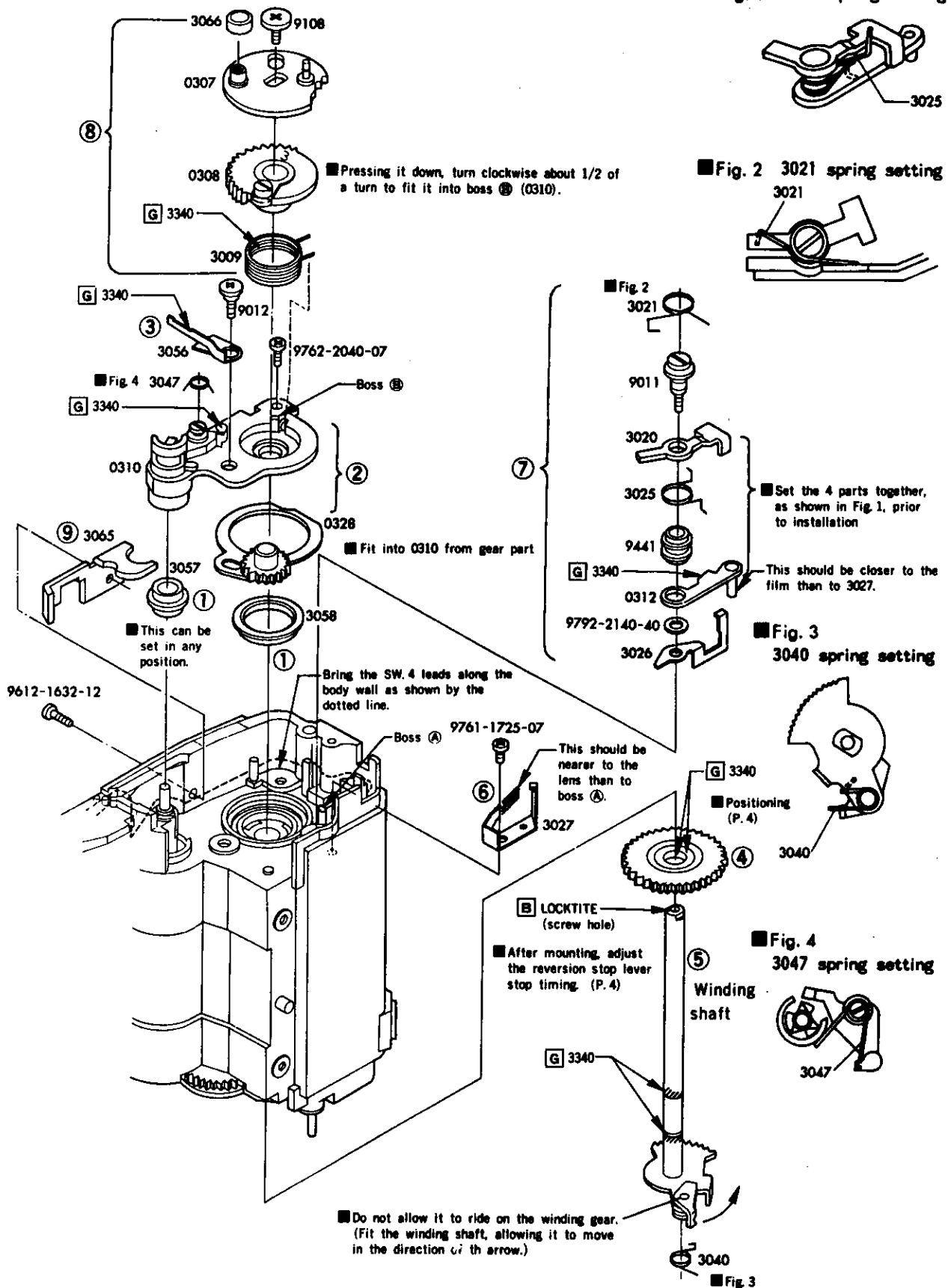
■ Fig. 2



1. With the winding idler gear crest fitted in hole (a) of winding base plate A and with the sprocket idler gear bottom fitted in hole (b), set the sprocket gear so that the shaft under the sprocket gear is parallel with winding base plate A.
2. Then, put a mark on the tooth of the winding idler at hole (a), as shown in Fig. 2.
 - After marking the winding idler gear, align the mark with hole (a) and set the sprocket gear as shown in Fig. 1.

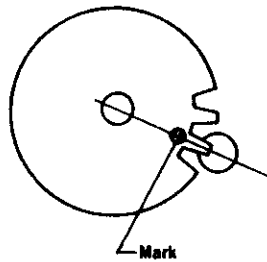
2 Winding shaft

Assemble the parts in the order ①~⑨

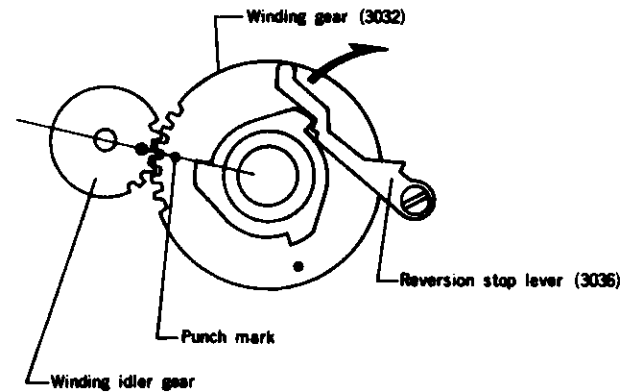


■ Winding gear positioning procedure

■ Fig. 1 Winding idler gear position



■ Fig. 2

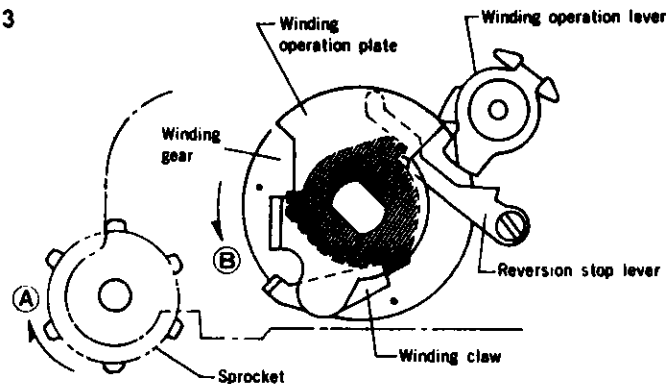


1. Make sure that the winding idler gear is positioned as shown in Fig. 1.
2. Allow 3036 to move in the direction of the arrow, then set the winding gear so that the punch mark of the winding gear is aligned with the mark of the winding idler gear. (Fig. 2)

■ Reversion stop lever stop timing adjustment

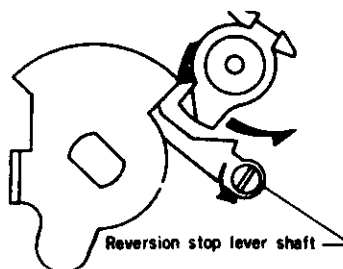
1. Position the winding operation plate as shown in Fig. 3, and temporarily set the winding operation lever.
2. With the winding claw and reversion stop lever fitted into the winding gear as shown in Fig. 3, press the winding operation plate in the direction of arrow ② while applying a load to the sprocket in the direction of arrow ① so that the winding claw is set securely onto the winding gear.

■ Fig. 3



3. Applying a load to the sprocket and winding operation plate as shown by ① and ②, turn the reversion stop lever shaft until the winding operation lever is disengaged from the winding operation plate. (Fig. 4)

■ Fig. 4



3 Winding base plate B

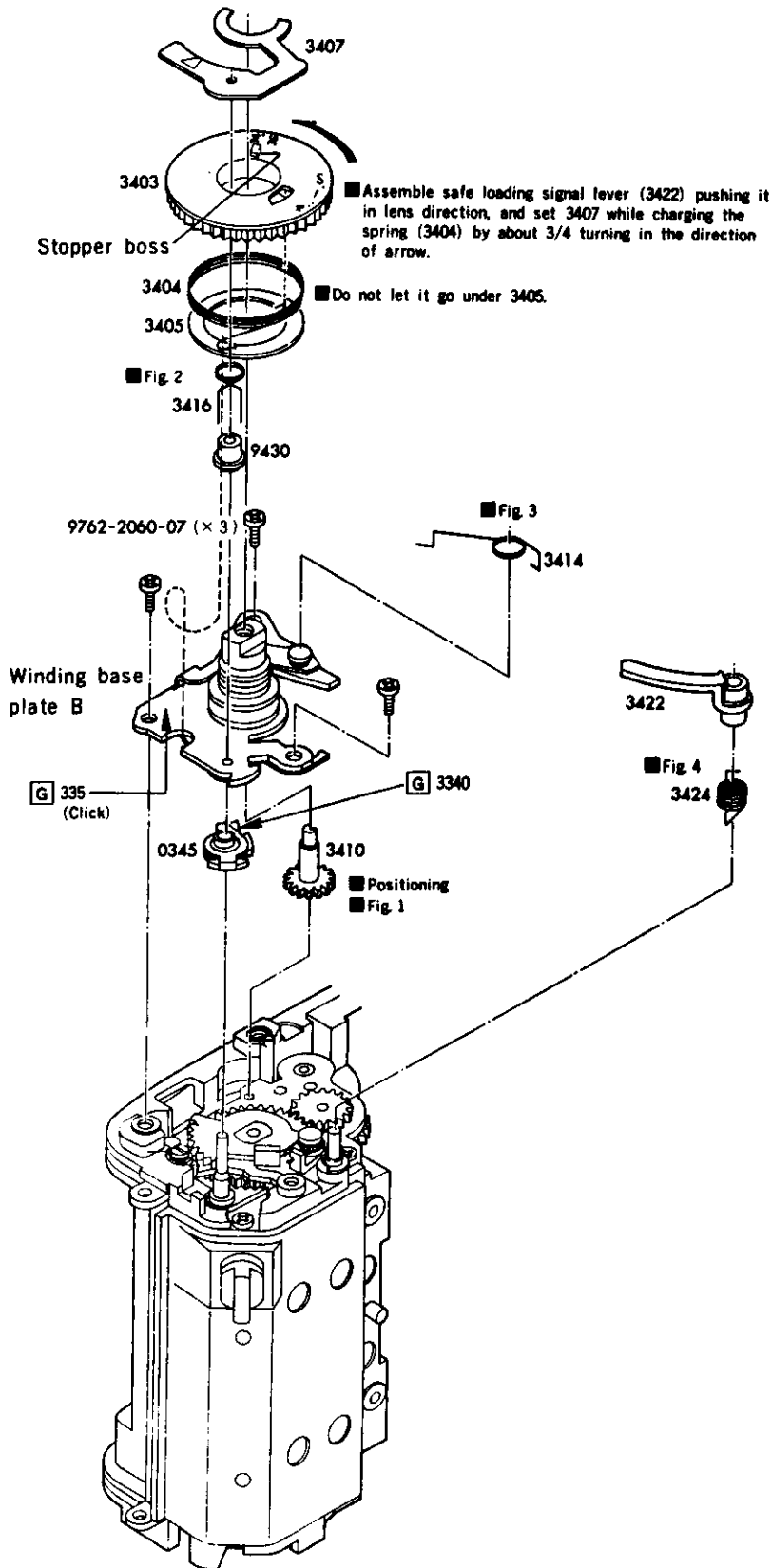
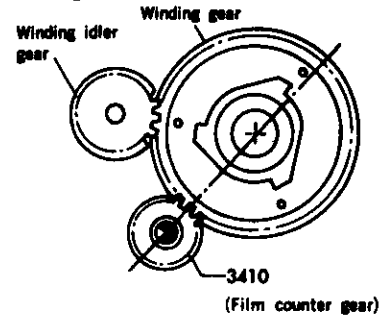


Fig. 1



Make sure that the punch mark of the winding gear is correctly facing the center of the winding idler gear, and then set 3410 so that the V groove is positioned as shown above.

Fig. 2 3416 spring setting

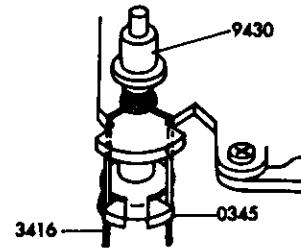


Fig. 3 3414 spring setting

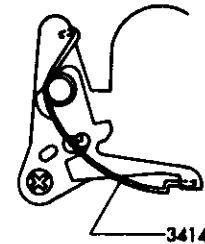
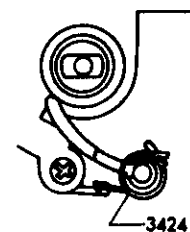


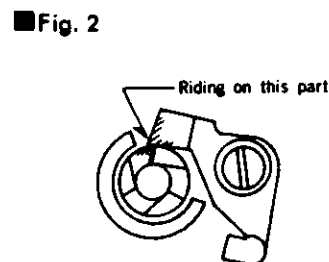
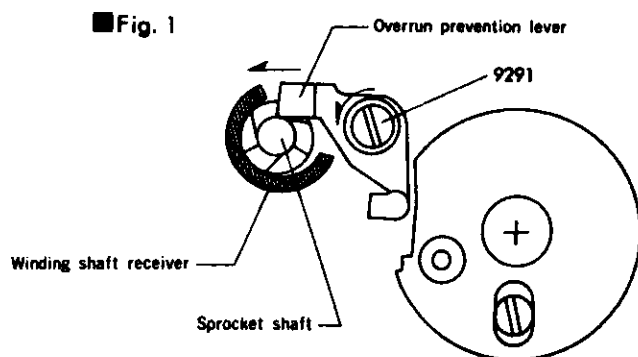
Fig. 4 3424 spring setting



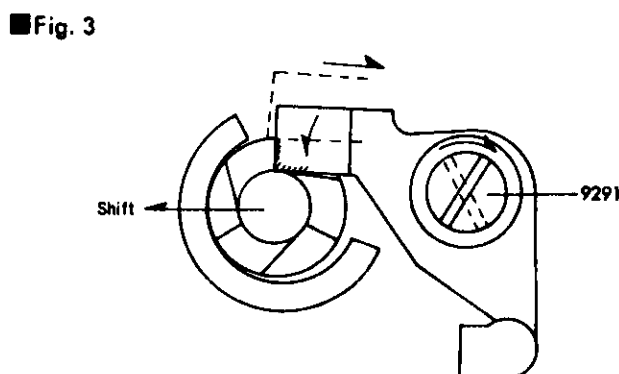
After completion of the assembly work, mount the film advance lever and carry out the adjustments and checks on P. 6, 7, 8.

■ Overrun eccentric pin adjustment

1. After winding, hold the film advance lever and turn the eccentric pin (9291) counterclockwise until the sprocket shaft (3052) touches the winding shaft receiver. (Fig. 1)
2. Return the winding lever slightly, and then wind it again to set it in the condition shown in Fig. 2.



3. Then, shift the sprocket shaft by finger toward the body center to set it in the condition shown in Fig. 3, and slowly turn the eccentric pin (9291) clockwise until the overrun prevention lever is engaged with the ratchet of the sprocket shaft.



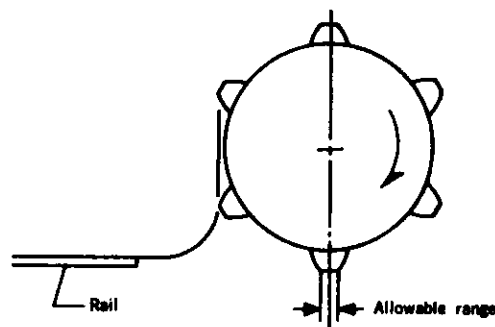
- **Checking adjustment:** During the winding lever operation, the end of the overrun prevention lever should not be caught by the sprocket claw. After winding is completed, the lever should be engaged with the claw.

■ Winding mechanism check

① Position of sprocket claws

After winding, hold the winding lever and return the sprocket in the direction of the arrow, as shown in Fig. 1. The sprocket claw positions should then be as illustrated.

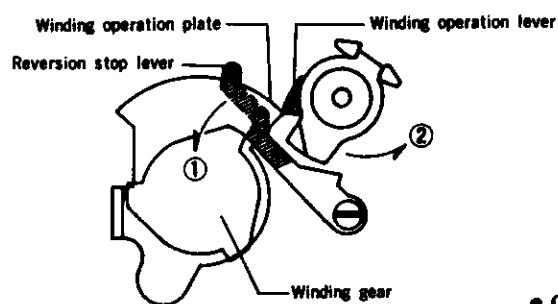
■ Fig. 1



② Reversion stop lever timing

Slowly turn the film advance lever while applying a load to the sprocket. The winding operation lever should disengage from the winding operation plate after (or at the same time) the second step of the reversion stop lever begins to engage with the claw of the winding gear.

■ Fig. 2

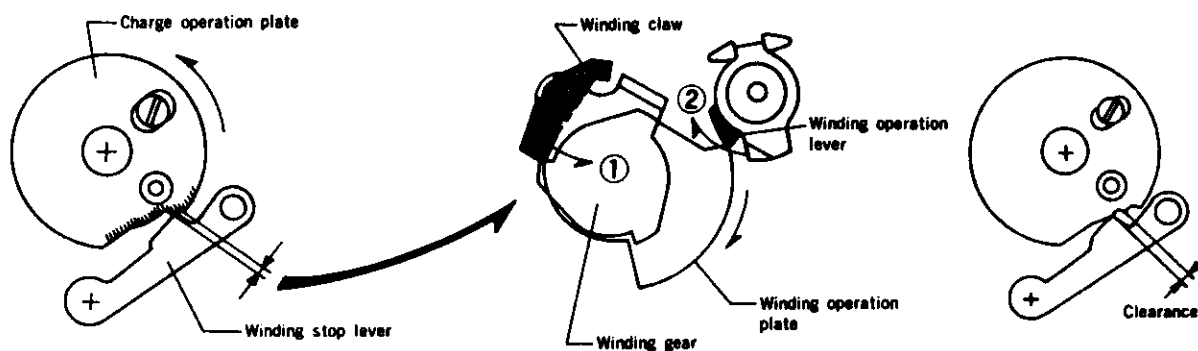


● Check through the clearance of the strap hanger screw.

③ Check and adjustment of winding operation lever timing

- After winding completion, slowly return the film advance lever. The winding stop lever should engage on the 1st stop position of the charge operation plate. Before it engages on the 2nd stop position, ① the winding claw and ② the winding operation lever should disengage from the winding operation plate. The order of ① and ② is reversible.
- And also make sure that a clearance should be visible between winding stop lever and charge operation plate after winding stop lever engages with the 2nd stop position of charge operation plate.

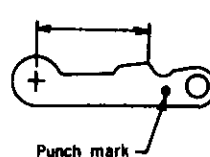
■ Fig. 3



If adjustment is not made well as mentioned above, replace winding stop lever with a new one.

(Timing failure of winding operation lever may occur by replacing parts of winding mech. with accumulated tolerance of each part.)

■ Fig. 4



Types of winding stop lever-A set

Parts No.	Mark	L(mm)
2017-0312-01	no marked	8.6
2017-0322-01	marked	8.8

■ Note:

The following symptoms may occur by replacing parts of the winding stop lever A-set even timing of winding operation lever is normal.

- ① The symptom of replacing 0322-01 by 0312-01.

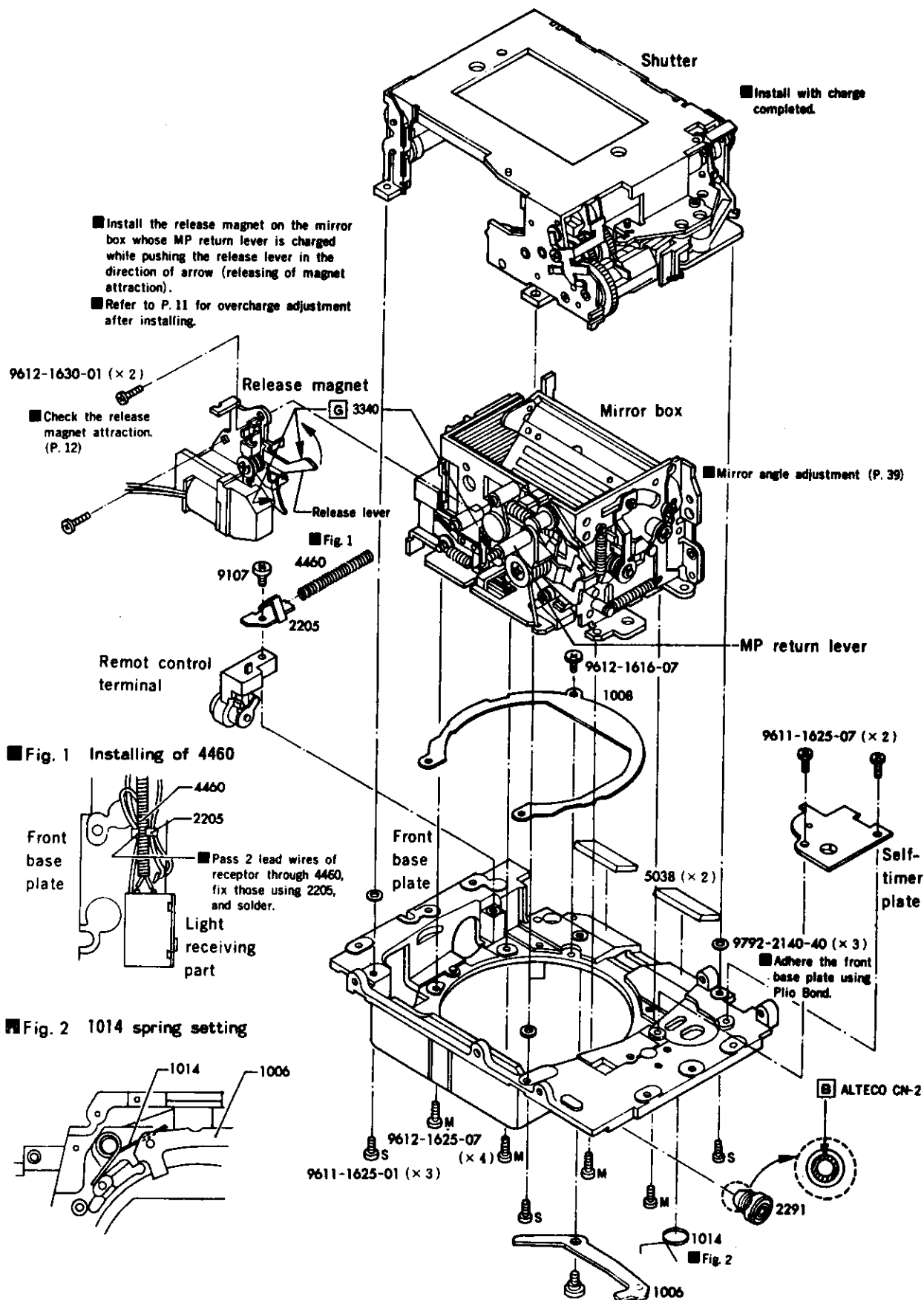
Idle winding may take place cause of winding claw is not engaged even winding stop lever engaged on 2nd stop position.

- ② The symptom of replacing 0312-01 by 0322-01.

Winding stop lever may not engage on the 2nd stop position or no clearance appears even winding stop lever engaged.

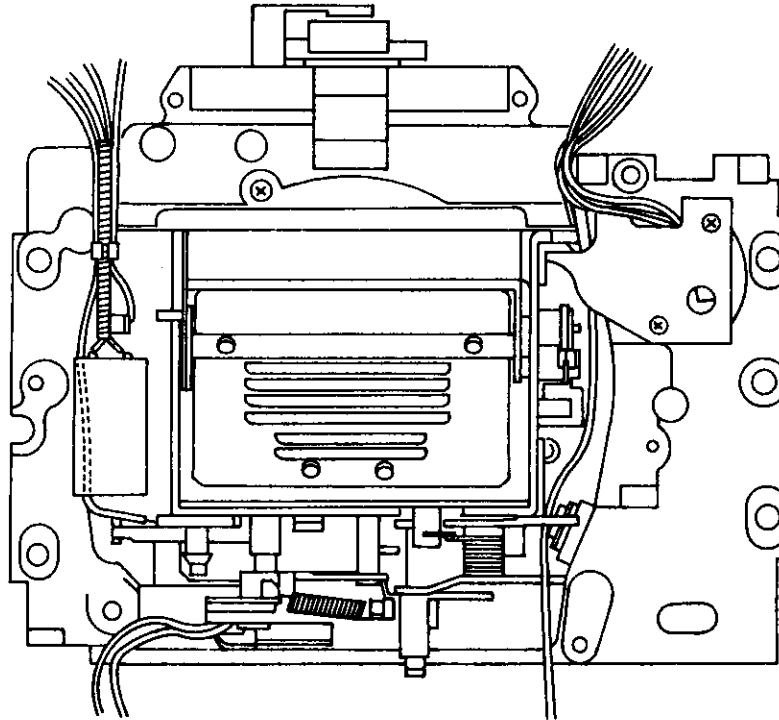
4 Front base plate block assembly-1

■ Refer to the arrangement of the lead wires on the next page.

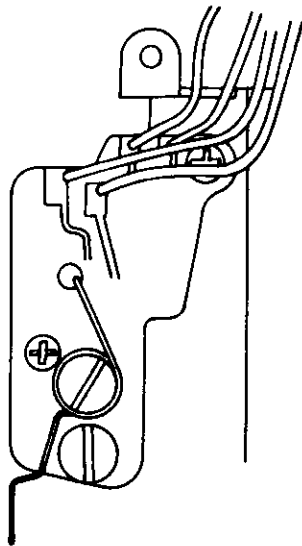


■ Arrangement of front base plate lead wires

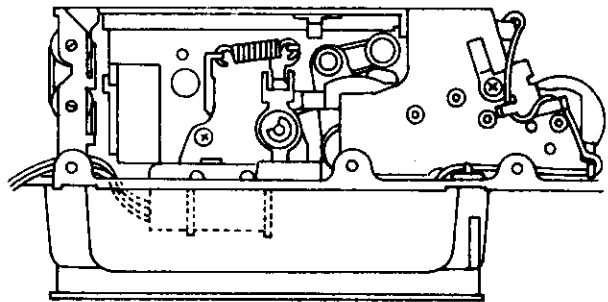
■ Fig. 1



■ Fig. 2



■ Fig. 3

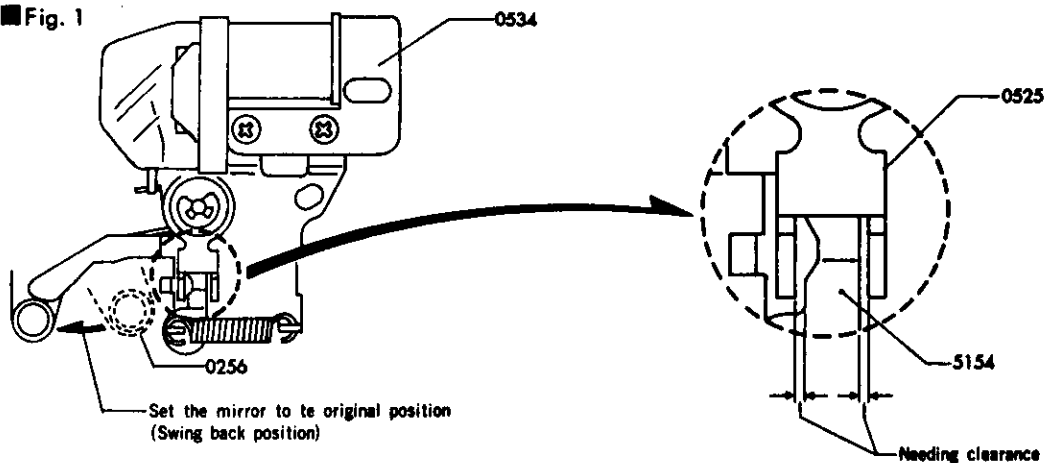


■ Check and adjustment of level of the release magnet overcharge

■ Adjustment procedure

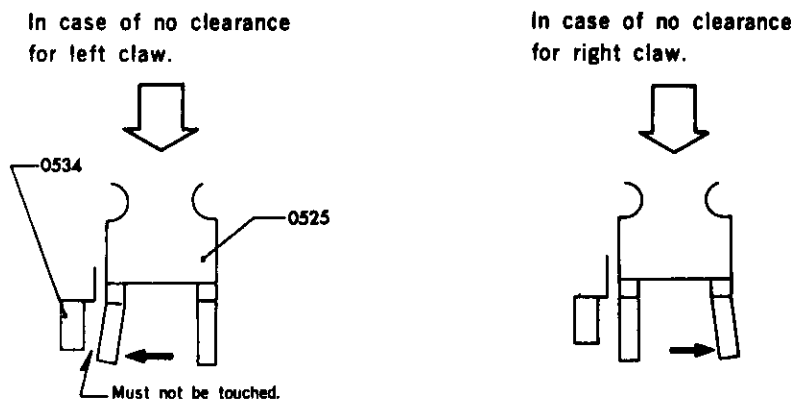
1. Set the release magnet on the mirror box, disengage the MP return lever (0256) stopper, and re-set the mirror to the original position.
2. Make sure 5154 will not touch with claws, right and left, of 0525.
(There is no necessity to adjust clearance of right and left evenly.)

■ Fig. 1



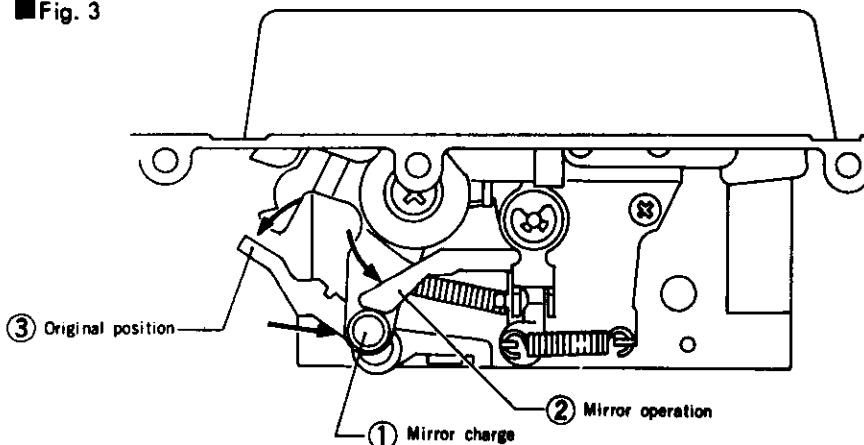
3. If no clearance, adjust it by bending 0525. Then, make sure that left side claw will not be touched with 0534 by excessive bend.

■ Fig. 2



4. After adjustment, make sure it operates perfectly by mirror operation in the order of ①~③. If adjustment is insufficient, mirror will be up at the time of winding.

■ Fig. 3

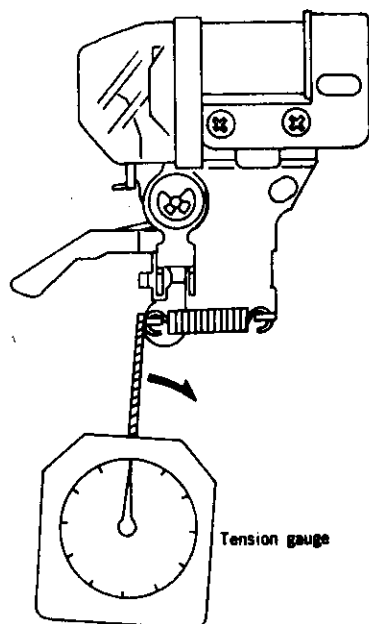


■ Release magnet attraction check

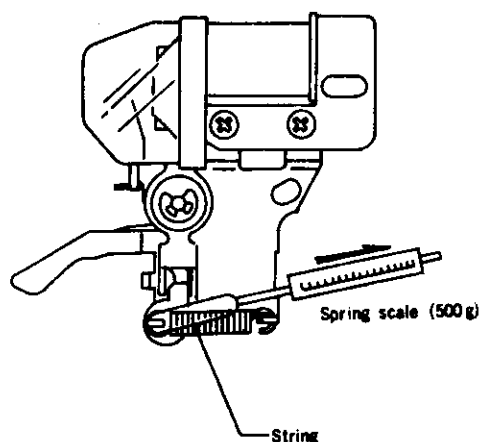
■ Measuring instruments : Constant voltage D.C power supply (Model 524B, E-1, E-2)
: Dial tension gauge (500 g, 300 g)

■ Checking procedure

■ Fig. 1 Attraction



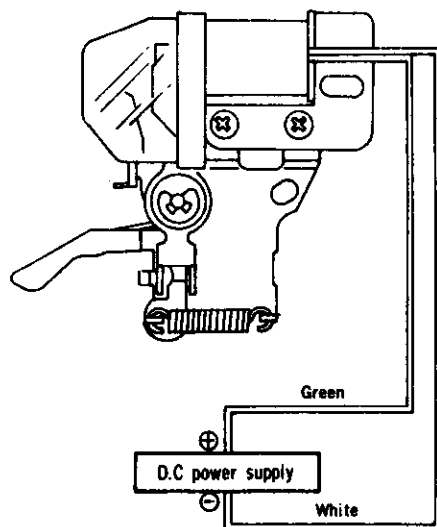
■ Fig. 2 Attraction



Standard	150g or more
----------	--------------

- Attraction check.....As shown in Fig. 1, set a tension gauge to the release magnet, and then check the value 3 times when the contact piece separates.
(If a tension gauge of more than 270g is not available, a spring scale of about 500g can be used instead as shown in Fig. 2)

■ Fig. 3 Separation voltage

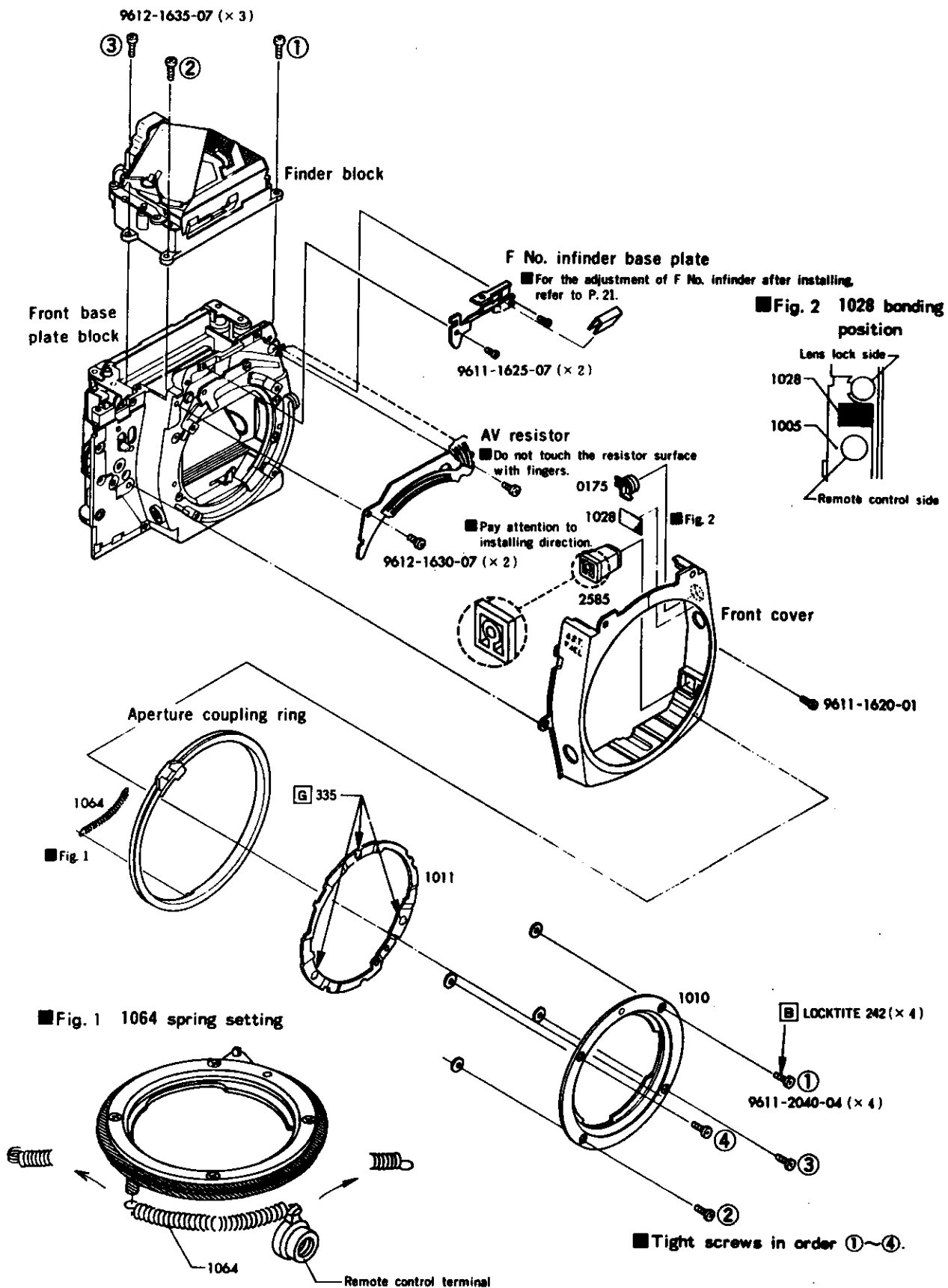


Standard	Separates at 1.8V or less
----------	---------------------------

- Separation voltage check...As shown in Fig. 3, connect to a D.C power supply and check to see if the contact piece separates at 1.8V or less.

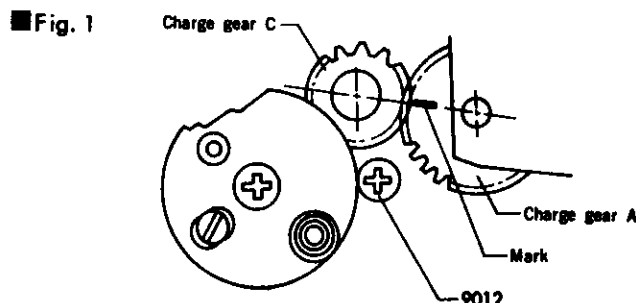
5 Front base plate block assembly-2

■ Tight screws in order ①~③.



■ Shutter gear position adjustment

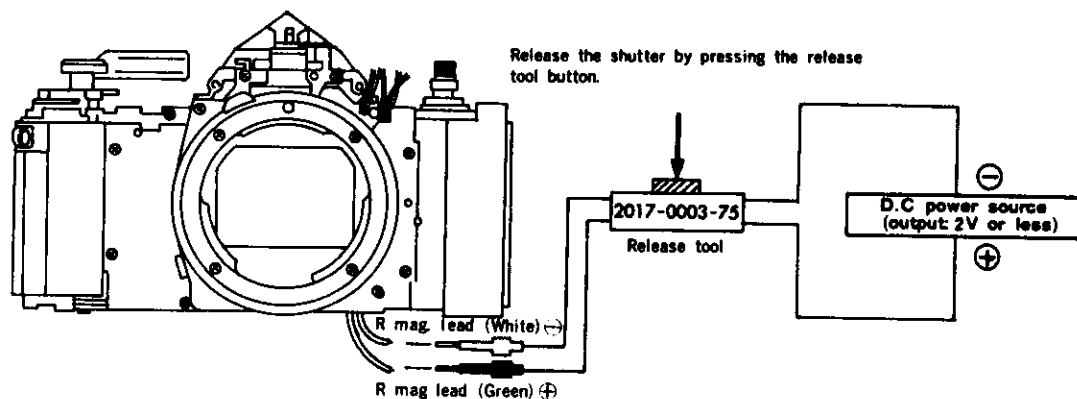
1. Engage the gears so that the mark of charge gear A faces the center of charge gear C, and tighten 9012. The gear engagement clearance should be 0.1~0.2 mm.



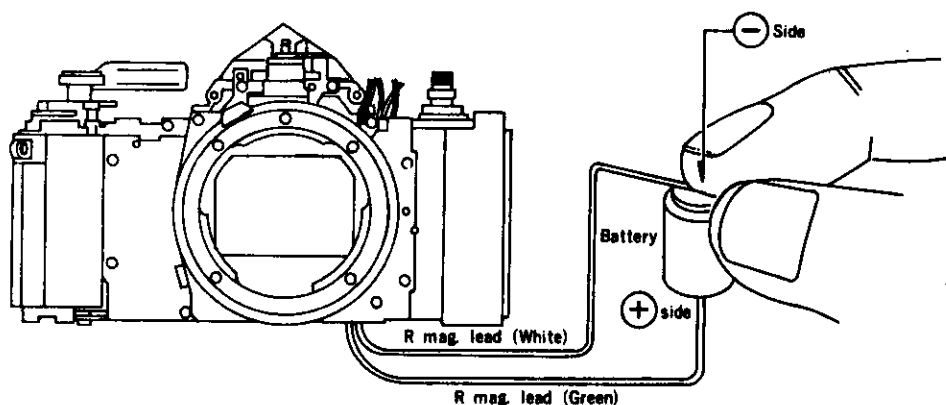
■ Shutter release procedure

- In this camera, the mirror operation mechanism is started with the separation of the release magnet (R Mag). Therefore, after mounting the shutter block on the body, the shutter cannot be released unless the flexible P.C board is installed with the wiring completed. For this reason, the shutter should be released by the following method when performing any checking or adjustments, such as for winding, mirror box, shutter release, etc., after assembling the front base plate block as shown on P. 14.

① By using a release tool (2017-0003-75)



② By using a battery

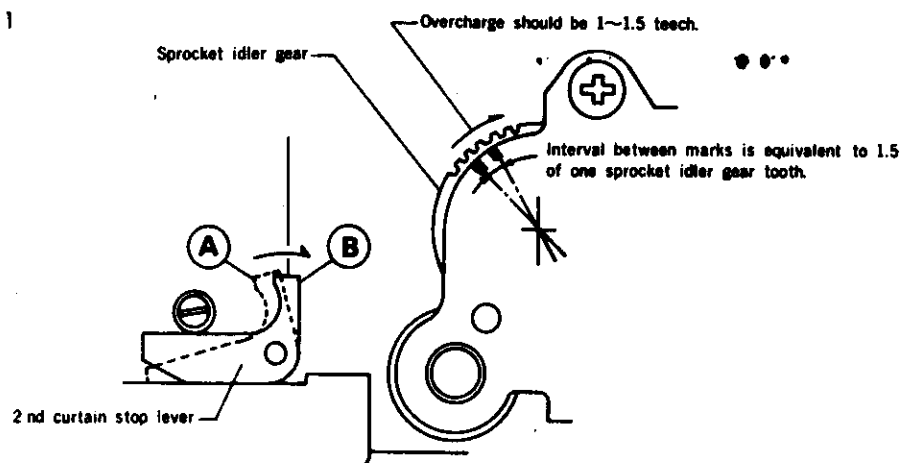


■ **Caution:** In both methods ① and ②, supply power until the completion of shutter operation. (Otherwise the shutter tester may fail to give a correct indication.)

■ Shutter charge adjustment

1. Slowly turn the film advance lever and check the over-charge from the time the 2nd curtain is stopped (the 2nd curtain stop lever moves from ① to ②, as shown below) until the film advance lever stops by checking the movement of the sprocket idler gear.

■ Fig. 1

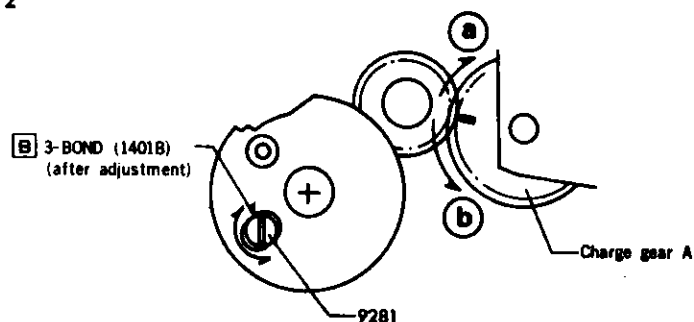


Caution: If the winding operation is not smooth, or if the overcharge exceeds two teeth, immediately stop winding and adjust.

■ Adjustment procedure

- Overcharge is less than 1 tooth.....Turn the eccentric pin (9281) counterclockwise.
- Overcharge is over 1.5 teeth.....Turn the eccentric pin (9281) clockwise.

■ Fig. 2

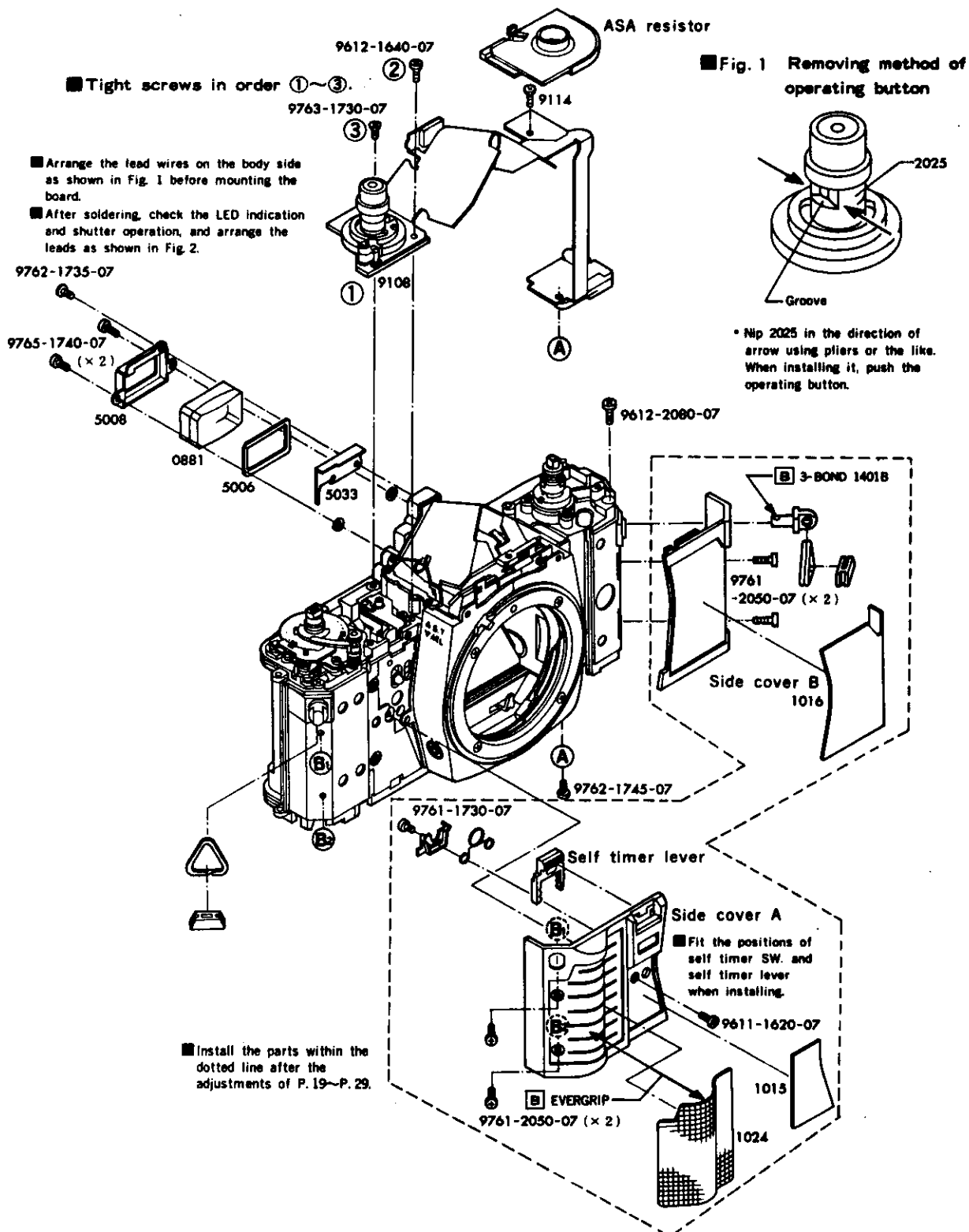


- If the adjustment by the eccentric pin is not sufficient, shift charge gear A by one tooth. (In the case of an undercharge, shift it in the direction of ①, and in the case of an overcharge, in the direction of ②, as shown in Fig. 2.)

7 Flexible P.C board installation

■ After installing the flexible P.C board and soldering the lead wires, carry out the adjustment of P. 19~29.

■ If the shutter block has been disassembled, adjust it before mounting the circuit board. (P. 36)



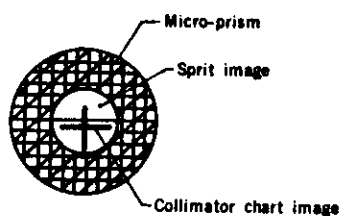
■ Viewfinder back adjustment

■ Measuring instruments: 1000 mm collimator (Model RC-1000 I, II, III)
 : Master lens for 054 finder back adjustment (054-5202-79)
 : Magnifier

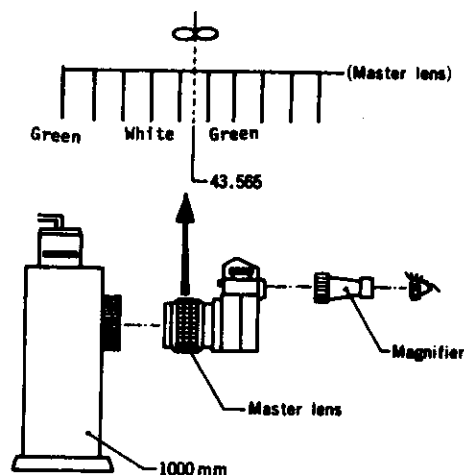
■ Adjustment procedure

1. Set the camera so that the chart image is as shown in Fig. 1, and set the scale of the master lens to 43.565.
 - After setting the master lens, turn it counterclockwise to put aside the looseness to one side.

■ Fig. 1

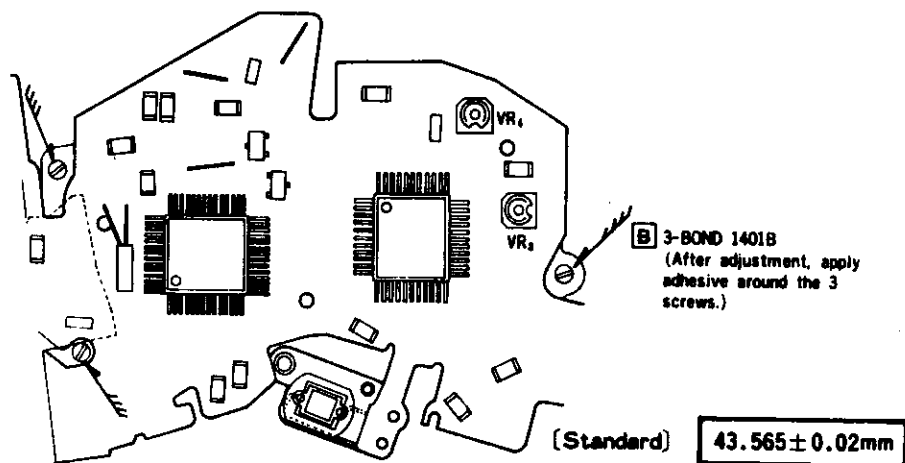


■ Fig. 2



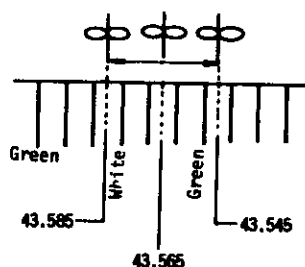
2. Make sure that the scale of the master lens is positioned as shown in Fig. 2, and move the 3 adjusting screws of Fig. 3 up and down uniformly to adjust the vertical line of the chart image.

■ Fig. 3



- If the microprism is partially obscure, adjust the vertical balance by using the screws, taking care not to deflect the vertical line of the chart image.
3. When the helicoid of the master lens is turned to adjust the focus after operating the shutter several times, the scale position of the master lens should be as follows:

■ Fig. 4 Allowable range

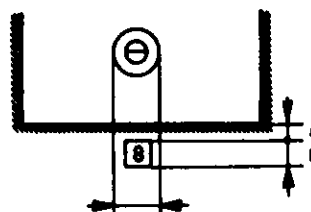


■ F No. infinder adjustment

[Standard]

Frame position	Height	$0 < a \leq b$
	Width	Within microprism
Aperture value	Should be within frame; adjust letter should be invisible at F 5.6.	

■ Fig. 2

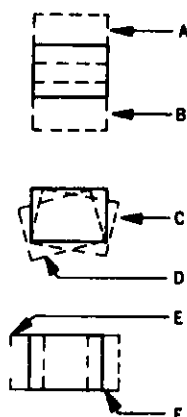


■ Adjustment procedure

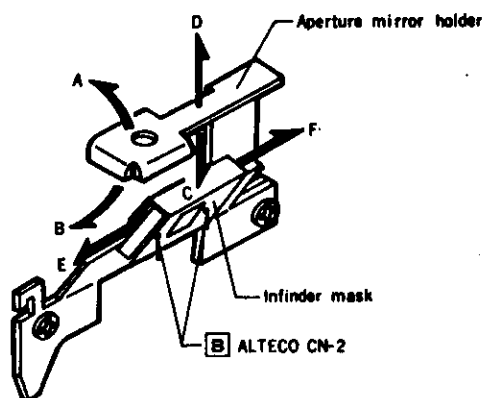
1. Check for deflection, as shown in Fig. 3, and adjust by bending (shifting) the aperture mirror holder and infinder mask in the directions A~F shown in Fig. 4.

■ Fig. 3

(Normal position is shown by thick lines.)



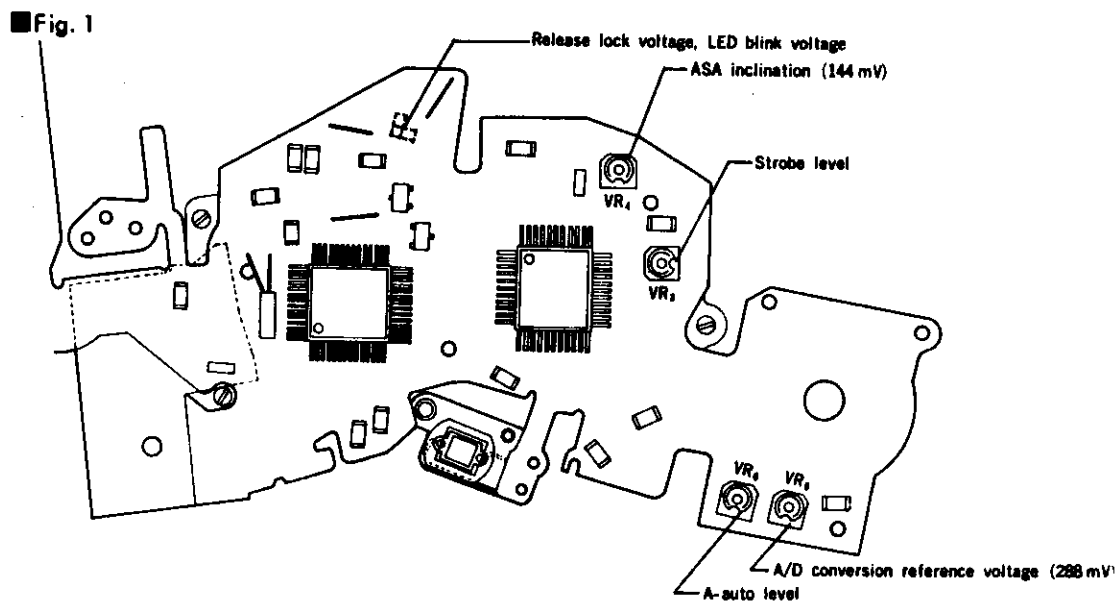
■ Fig. 4



- If the infinder mask is shifted, apply ALTECO CN-2 to it later.

■ Exposure adjustment

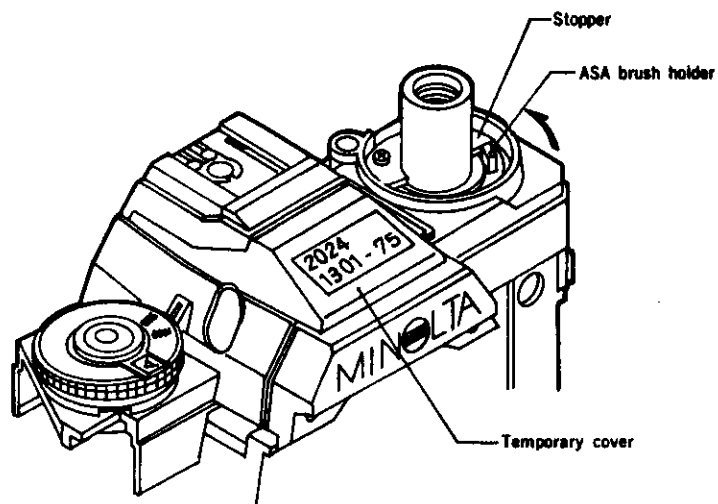
■ Resistor positions and adjustments



■ ASA 100 setting method

Rotate the ASA brush holder in the direction of the arrow until ASA 100 is at the position of the temporary cover stopper.

■ Fig. 2



1 Adjustment of ASA inclination

■ Measuring instrument: Digital multimeter (Type 2508, 3476, 2507)

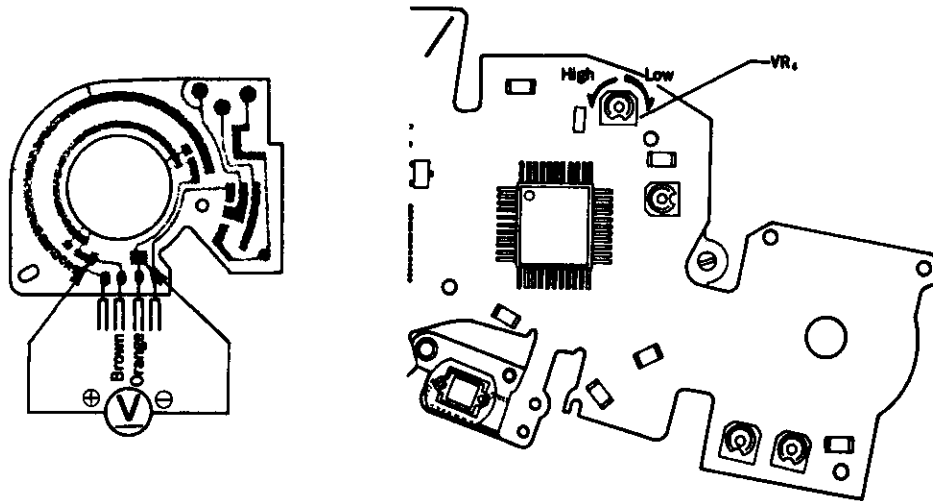
■ Adjustment procedure

1. Set the metering switch to ON and adjust by turning VR₁ so that the voltage at the point in Fig. 1 is $144 \pm 2 \text{ mV}$ (In case of 25°C room temperature)
Depending on the temperature when adjusting, use the table below to get adjustment voltage.

■ Fig. 1

[Adjustment voltage]

Temperature (°C)	15±2.5	20±2.5	25±2.5	30±2.5
Adjustment voltage (mV)	139±2	141.5±2	144±2	146.5±2



2 Adjustment of A/D conversion reference voltage

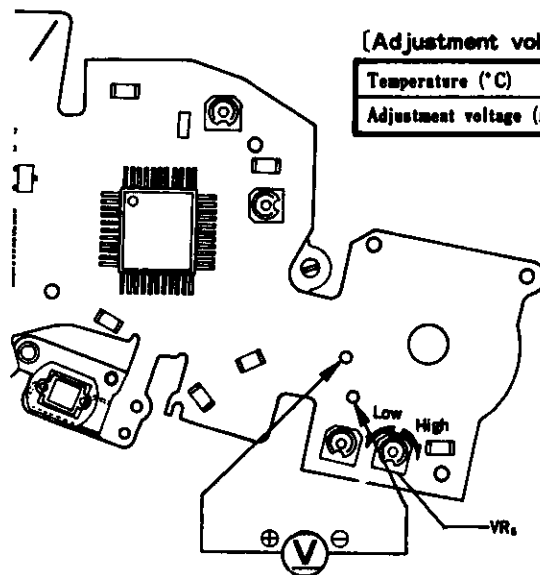
■ Measuring instrument: Digital multimeter (Type 2508, 3476, 2507)

■ Adjustment procedure

1. Set the metering switch to ON and adjust by turning VR₂ so that the voltage at the point in Fig. 2 is $288 \pm 3 \text{ mV}$ (In case of 25°C room temperature)
Depending on the temperature when adjusting, use the table below to get adjustment voltage.

[Adjustment voltage]

Temperature (°C)	15±2.5	20±2.5	25±2.5	30±2.5
Adjustment voltage (mV)	278±3	283±3	288±3	293±3



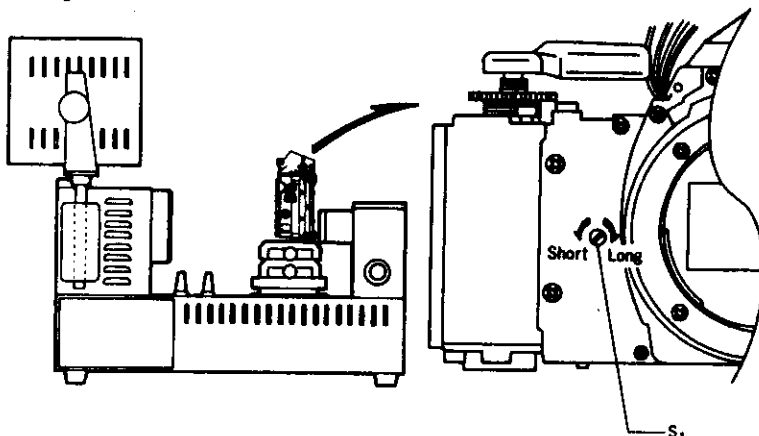
3 Adjustment of manual SS

■ Measuring instruments: Shutter tester (Model S-2101, FS-1DMN4)

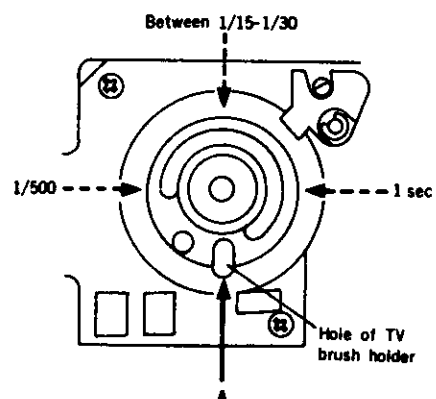
■ Adjustment procedure

- For adjustment, use a temporary cover. If not, adjust the position of TV brush holder referring to Fig. 2.

■ Fig. 1



■ Fig. 2 Relation between shutter speed and hole of TV brush holder position



1. Shutter speed adjustment and check (see the table below)

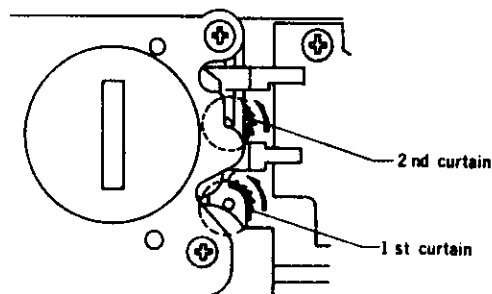
Step	Item	Part adjusted	Adjustment (check)	Remarks
①	1/1000 curtain speed check	—	(Both 1st & 2nd curtains are within 13 ms.)	If it is more than 13 ms or less than 10 ms, adjust the 2nd curtain speed.
②	1/1000 adjustment	S ₁ eccentric pin	0.98 ms	—
③	1/60 check	—	(16~18.5 ms)	—
④	X time lag	—	(Range A : 0.4 ms or more) (Range B : 2.4 ms or more)	Check it with SS 1/60 and if is defective, perform the adjustment on P.36.

- When the exposure unevenness at steps ②~③ is over 0.3 EV in both B-A and B-C ranges, and over 0.4 EV in the A-C range, adjust the curtain speed as follows.
- For the shutter speed standard, refer to the inspection standard.

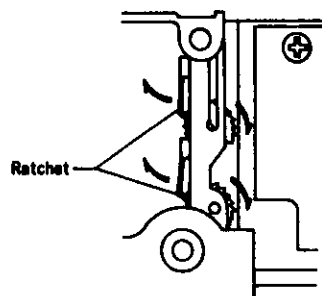
2. Curtain speed adjustment

Adjust by turning the ratchet so that the 1st and 2nd curtain speeds are $11 \pm 0.3 \text{ ms}$ at 1/1000.

■ Fig. 3 (Increasing the curtain speed)



■ Fig. 4 (decreasing the curtain speed)



- Remove the battery case base plate while pushing ratchet to release the ratchet claw and the ratchet return.
(Do not return it completely.)
- Return it sufficiently and adjust by slowly increasing the curtain speed.

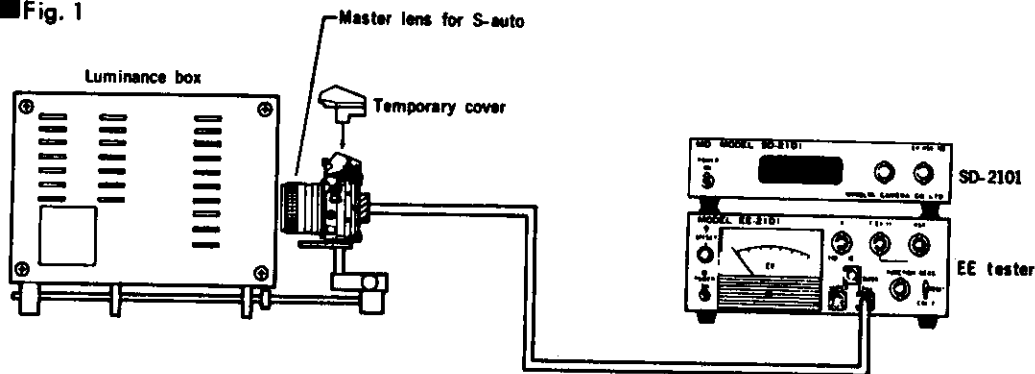
4 Adjustment of A-auto level, check of LED indication

- Measuring instruments :
- Luminance box (Model L-2101, L-222, L-223)
 - EE tester (Model EE-2101, EE-2111)
 - SS adaptor for EE tester (Model SD-2101)
 - Master lens for S-auto (2005-0001-75)
 - Temporary cover (2024-1301-75)

■ Adjustment procedure

1. Set the camera and measuring instruments as follows.
 - After setting the master lens, turn it counterclockwise to put aside the looseness to one side.

■ Fig. 1



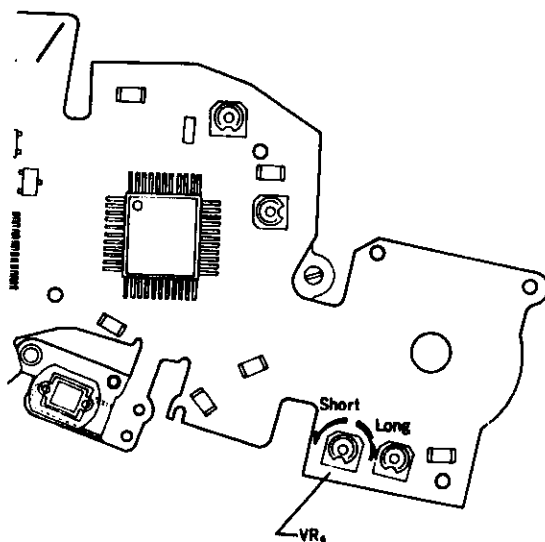
- Luminance box
K value : 1.2
* Luminance : EV 10, 15
- Camera
Shutter dial : A
ASA : 100
- Master lens
Aperture : F 5.6
Distance : ∞
- EE tester
K value dial : 1.2
ASA dial : 100
- SD-2101
Aperture switch : F 5.6
Luminance switch : Same as luminance box.

* When using luminance box (L-222 or L-223), set it at EV 11, and use a ND filter (MINOLTA ND 50% FOR ADJUSTMENT).

2. Adjust and check as follows:

Step	Luminance	Shutter speed adjustment	EE level allowable range	Part adjusted	Indication allowable range (± 0.5 EV)		
1	EV 10	34 ms	—	VR _s (Fig. 2)	1/60		
					1/30		
					1/15		
2	EV 15	—	± 0.4 EV	(Check only)			

■ Fig. 2



5 Adjustment of strobe level

A Adjustment by luminance box (Model L-2101)

- The Model L-2101 luminance should be used. However, ones with color temperatures ranging from 2600K to 3000K (measured value of the Minolta color meter) at EV 15 can also be used.
- Luminance boxes with long-wavelength cut filters and lamps with cold mirrors cannot be used because of measuring errors. (Ex. Model L-223)
- When no luminance box is used for the adjustment, employ method B on the next page.

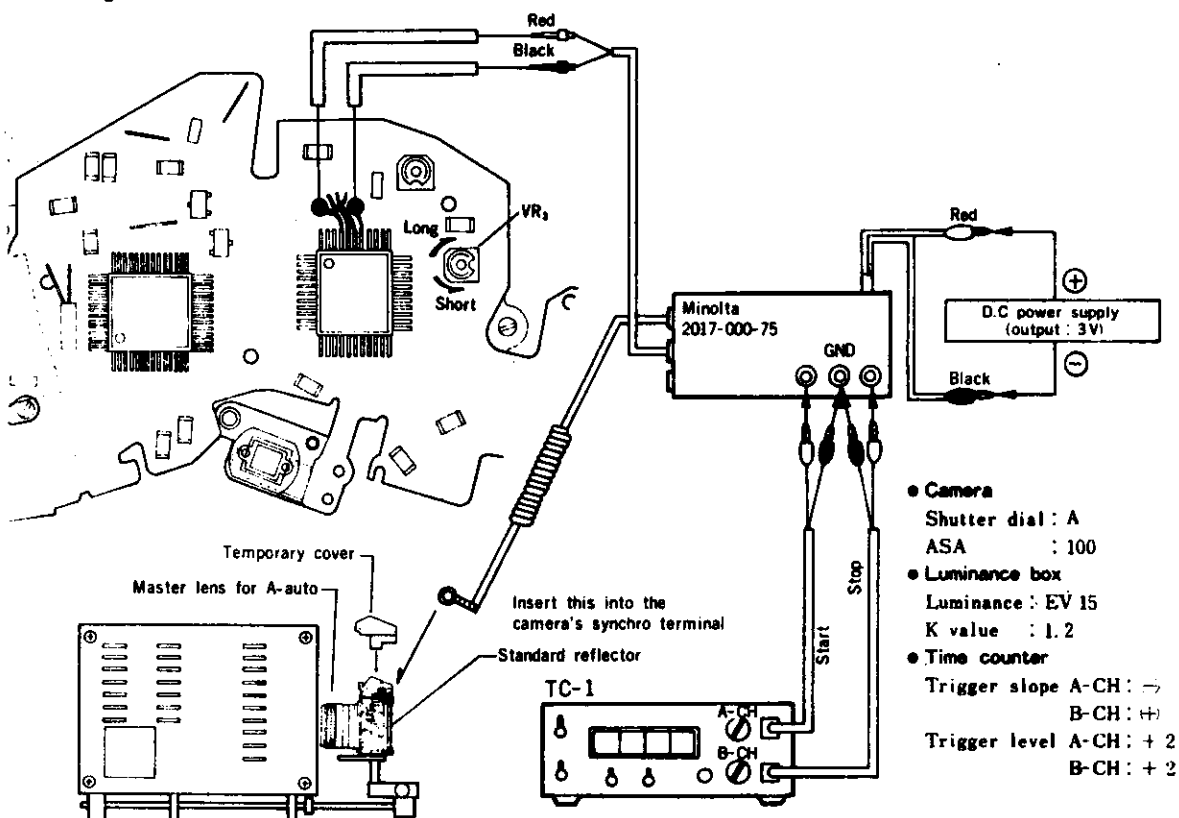
Measuring instruments: Luminance box (Model L-2101)

- : Strobe level adjuster (2017-0001-75)
- : Standard reflector (2017-0002-75)
- : Temporary cover (2024-1301-75)
- : Master lens for A-auto (2005-0002-75)
- : Constant voltage D.C power supply (Model 524B E-1, E-2)
- : Digital time counter (Model TC-1)

Adjustment procedure

1. Solder the measuring lead wires (2 wires) to the camera and connect the measuring instruments as follows:
 - After setting the master lens, turn it counterclockwise to put aside the looseness to one side.

Fig. 1



2. With the shutter released, adjust by turning VR₁ so that the indication of the time counter is **0.63^{+0.01}_{-0.15} ms**

③ Adjustment by strobo tester (Model ST-Ⅲ)

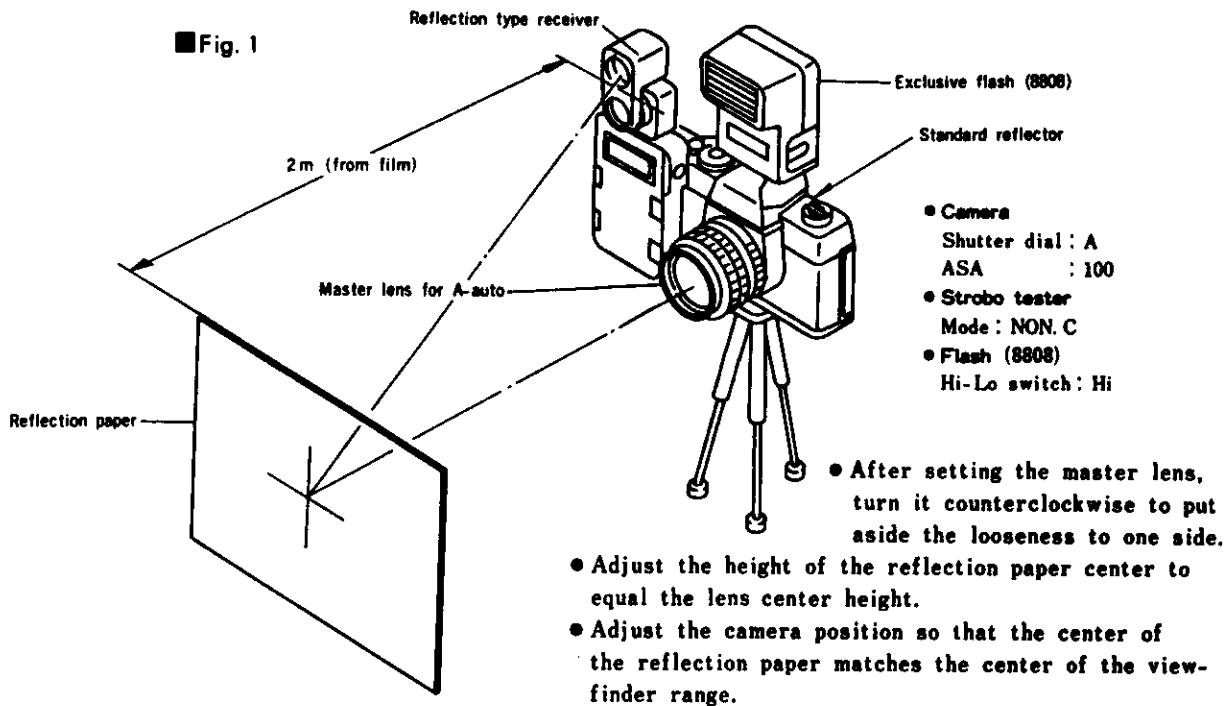
Model ST-I and Ⅱ cannot be used because non-cord adjustment is impossible.

■ Measuring instruments: Strobe tester (Model ST-Ⅲ)

- : Standard reflector (2017-0002-75)
- : Master lens for A-auto (2005-0002-75)
- : Temporary cover (2024-1301-75)
- : Reflection paper (1.3m×2m)---used for adjustment of Minolta AEF series.
- : Exclusive flash (AEF 280PX---Code No. 8808)

■ Preparations

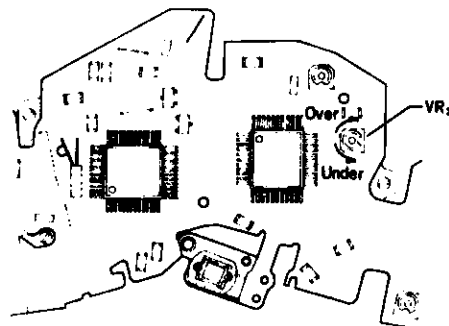
Connect 4 lead wires for sync of temporary cover to the body. And set the measuring instruments as shown below.



■ Adjustment procedure (darken the room to eliminate the influence of external light)

1. Set the flash main switch to ON, and 30 sec. or more after the pilot lamp illuminates, look into the viewfinder of the strobo tester (shown above) from near the flash, and then direct the eyepoint of the view center to the center of the reflection paper. Next release the camera shutter and read the indication of the strobo tester.
2. If the indication of the strobo tester is not within $F 5.6 \pm 0.5EV$, adjust by turning VR₁. (Fig. 2)

■ Fig. 2



About the standard reflector:

- Do not stain the reflector by touching it with the hand, etc., or correct measurement will not be possible.
- When the reflection surface is exposed to light, a color change occurs causing changes in the reflection factor. It must be replaced with a new one about once a year. The reflection paper can be replaced; reflection paper is available for this purpose. When placing an order, specify reflection paper for 2017-0002-75.

■ Check and adjustment of release lock voltage and LED blink voltage

■ Check

[1] Release lock voltage	Standard	$2.46 \pm 0.1 \text{ V}$
[2] LED blink voltage	Standard	$2.56 \pm 0.1 \text{ V}$

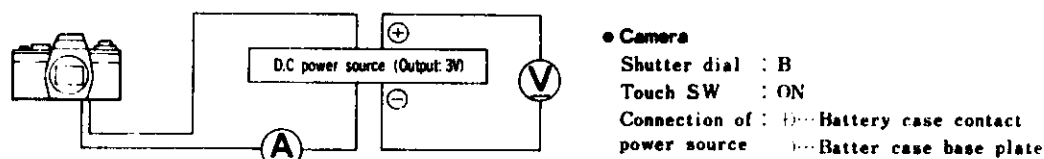
• In case of out of standard above, adjust those as following procedure.

■ Measuring instruments : Constant voltage D.C power source (MODEL 524B, E-1, E-2)
: Digital multimeter (Type 2508, 3476, 2507)
: Direct current tester

■ Checking procedure

1. Check the current consumption at B setting (incl'd * indication) using measuring instruments as follows.

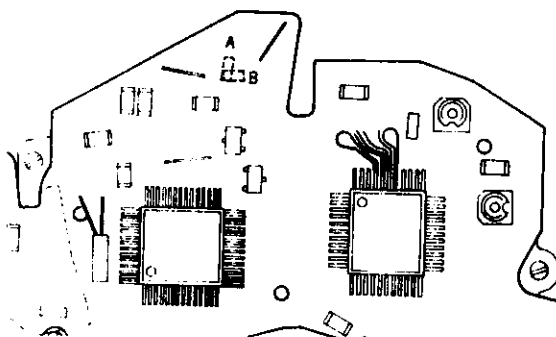
■ Fig. 1



2. Measure the release lock voltage while reducing slowly the voltage of D.C power source from 3V.
3. Choose a proper resistor (R_{11}) for B.C from the graph (next page) according to measured value (Checking procedure 1 & 2), and solder it on portion A or B in Fig. 2.

• Note--Measuring temperature should be within the range of $25 \pm 5^\circ \text{C}$.

■ Fig. 2



■ Checking high and low shutter speed limits

■ Measuring instrument : Shutter tester (Model S-2101, FS-1DMN4)

[1] High shutter speed limit (shutter speeds in other than high luminance operation in A mode.)

• Check the shutter speed with the shutter dial set to A.

Standard	$0.69 \sim 1.38 \text{ ms}$
----------	-----------------------------

[2] Low shutter speed limit (shutter speeds in other than low luminance operation in A mode.)

• Set the shutter dial to A, and then check the exposure time with light to the receiver interrupted.

Standard	Within 5 sec.
----------	---------------

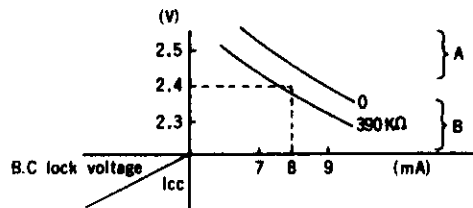
■ To obtain R_{11} value from the graph.

1. Read the value of current consumption from the axis of abscissas. (abscissa)
2. Read the release lock voltage from the axis of ordinates. (ordinate)
3. From the crossing point between 1 (abscissa) and 2 (ordinate), find the nearest slanting line, whose resistance value and soldering position (A or B) are what you need.

(e.g) Current consumption (abscissa) : 8 mA

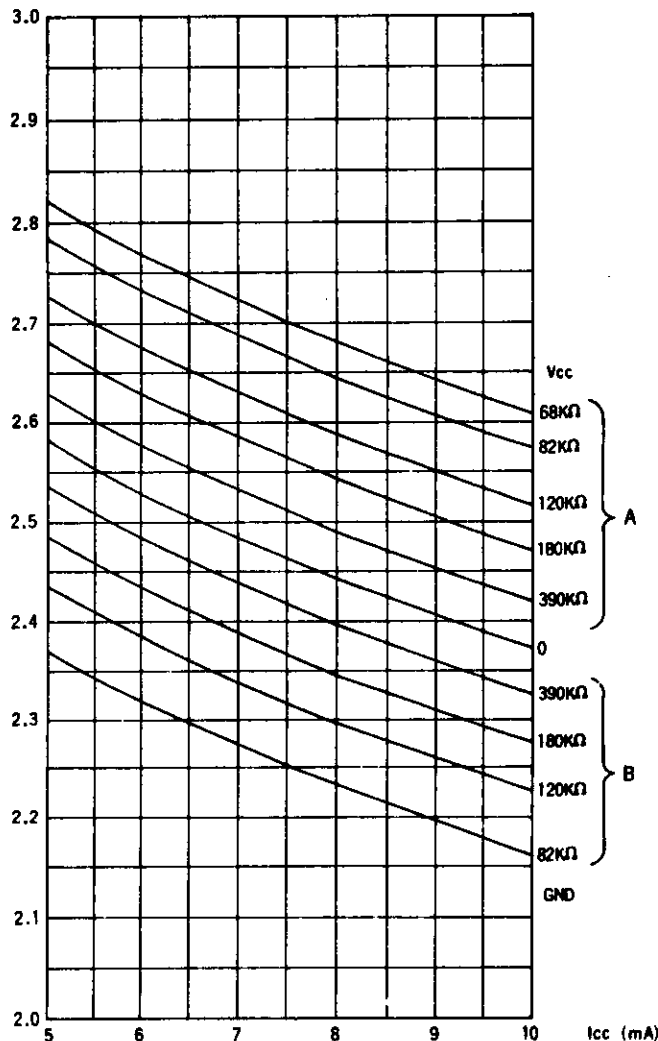
Release lock voltage (ordinate) : 2.4 V

From the crossing point in the graph, R_{11} : (390 K Ω) and its soldering position : B can be obtained.



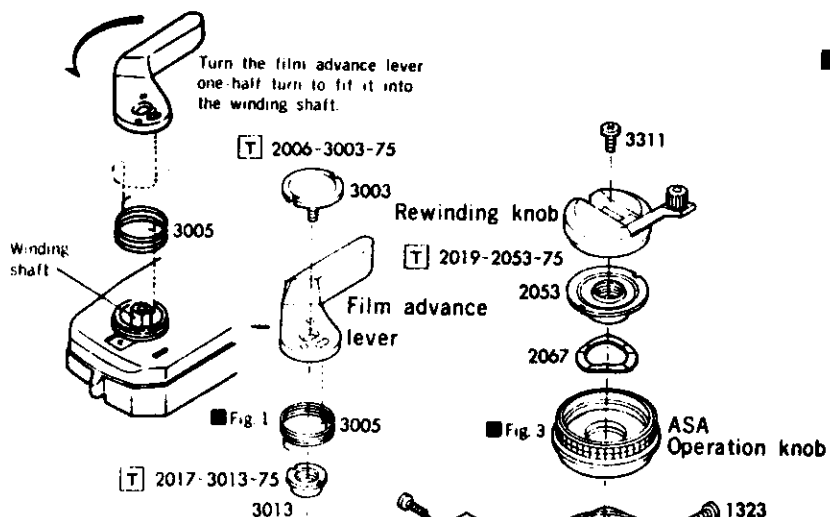
■ Graph

B.C lock voltage
(V)

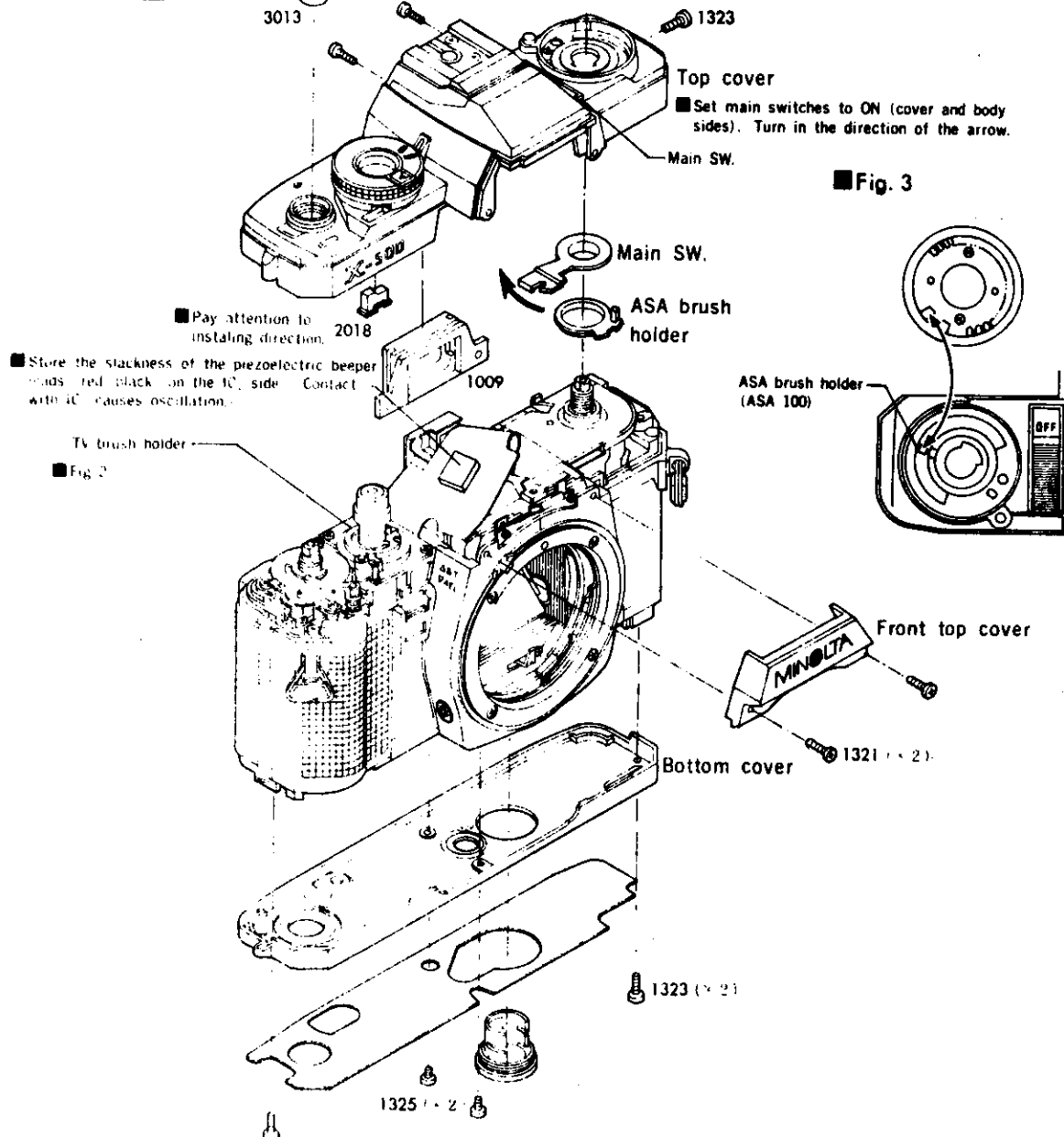
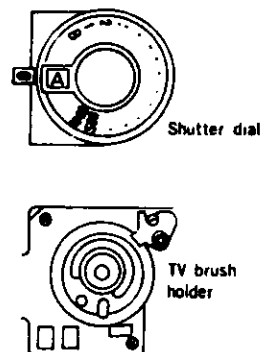


8 External parts (completion)

■ Fig. 1



■ Fig. 2 TV brush holder position

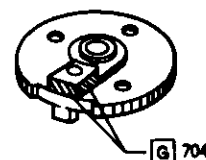
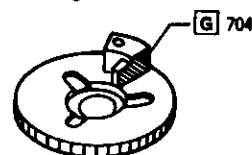


Shutter assembly-I

Assemble the parts in the order ①~⑥

Fig. 1

Fig. 2



2nd curtain shutter gear
G 704 (Fig. 2)

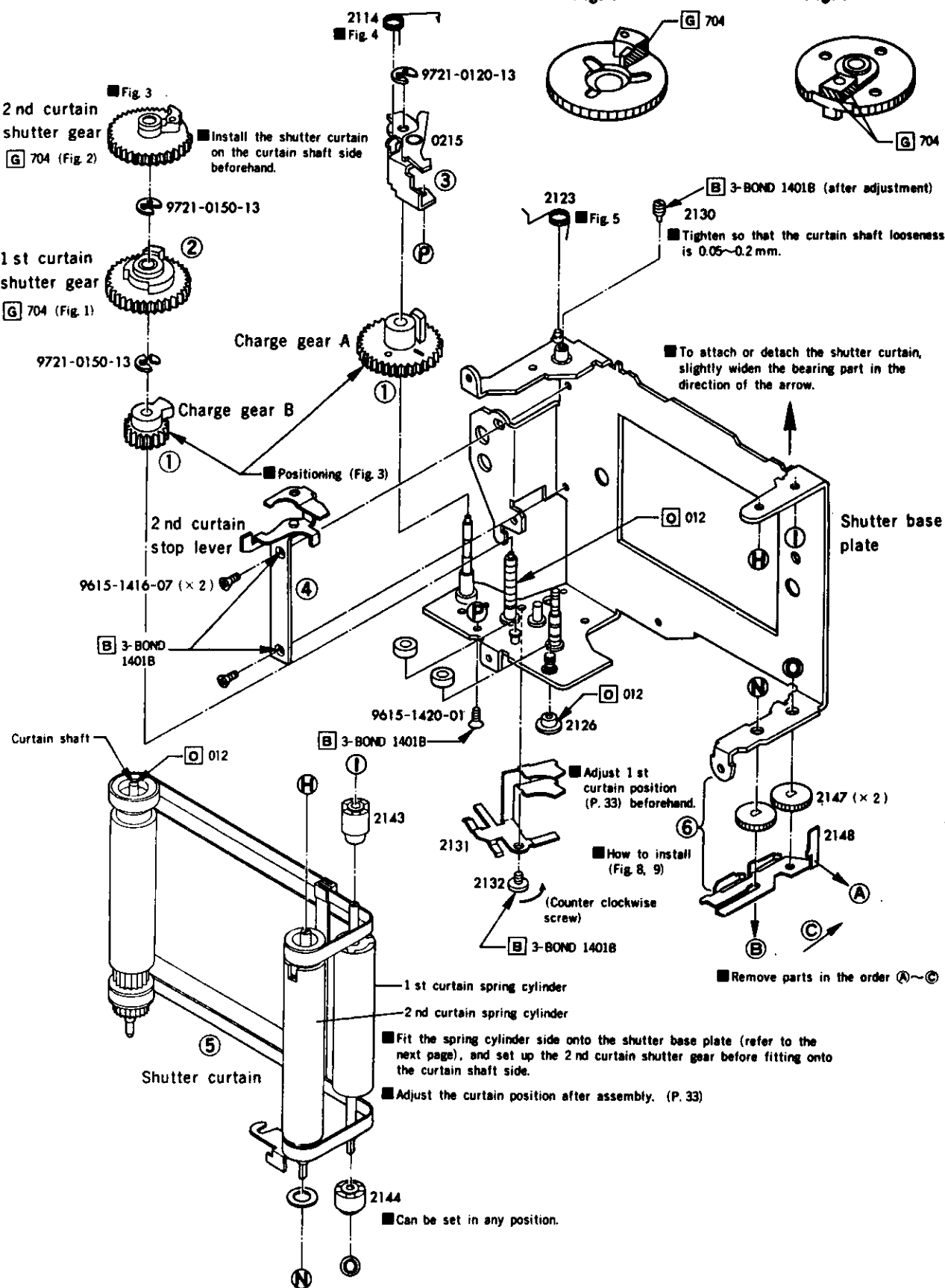
■ Install the shutter curtain on the curtain shaft side beforehand.

1st curtain shutter gear
G 704 (Fig. 1)

2123
Fig. 5

2130
■ Tighten so that the curtain shaft looseness is 0.05~0.2 mm.

■ To attach or detach the shutter curtain, slightly widen the bearing part in the direction of the arrow.



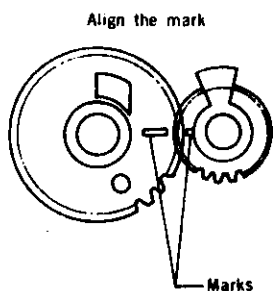
■ Can be set in any position.

■ Remove parts in the order A~C

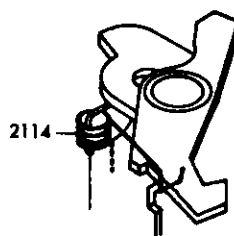
■ Fit the spring cylinder side onto the shutter base plate (refer to the next page), and set up the 2nd curtain shutter gear before fitting onto the curtain shaft side.

■ Adjust the curtain position after assembly. (P. 33)

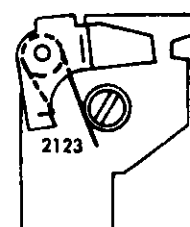
■ Fig. 3 Charge gear positioning



■ Fig. 4 2114 spring setting



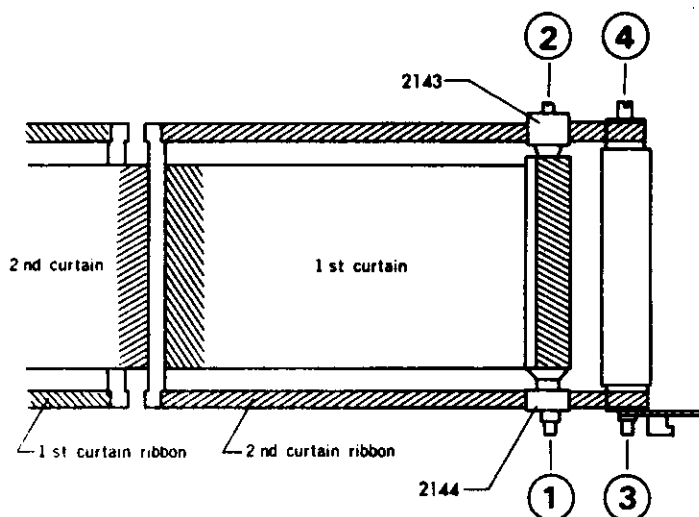
■ Fig. 5 2123 spring setting



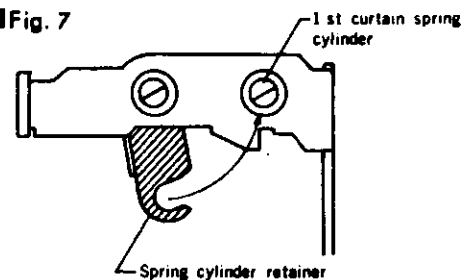
■ Shutter curtain mounting procedure (SP cylinder side)

1. Arrange the shutter curtains as shown in Fig. 4 and fit them in the holes of the shutter base plate in the order ①~④. When fitting in ④, slightly widen the bearing part of the shutter base plate.

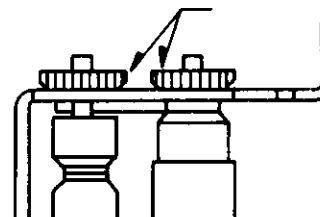
■ Fig. 6



■ Fig. 7

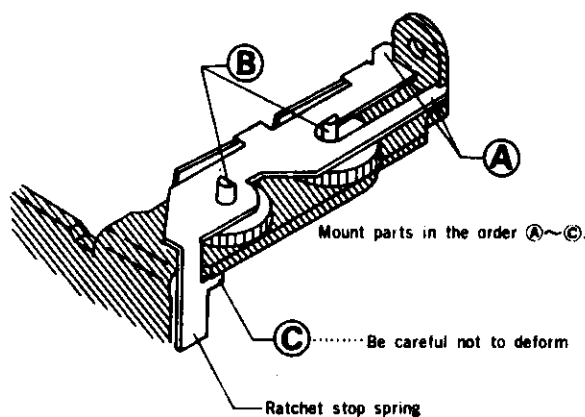


■ Fig. 8



2. Fit the curtain spring retainer into the 1st curtain spring cylinder by turning it in the direction of the arrow shown in Fig. 5.
3. Set the ratchet in the correct position (Fig. 8), and attach the ratchet stop spring. (Fig. 9)

■ Fig. 9

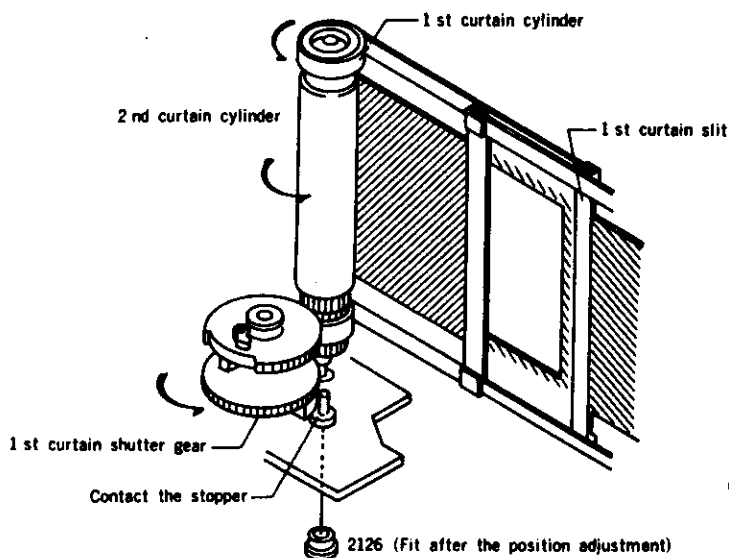


4. Charge the curtain spring by 6 turns for the 1st curtain and 4 times for the 2nd curtain.

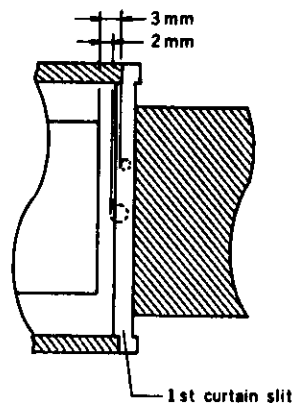
1st curtain position adjustment

1. Turn the 2nd curtain cylinder to stop the 2nd curtain halfway. (Fig. 1)
2. Turn the 1st curtain shutter gear counterclockwise until it touches the stopper. Then turn the 1st curtain cylinder counterclockwise to position the 1st curtain slit as shown in Fig. 2.

■ Fig. 1



■ Fig. 2 1st curtain position (with its travel completed)



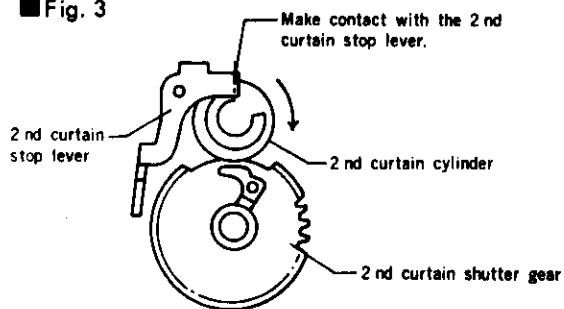
- Adjust so that the 1st curtain slit is positioned 2.5~3mm from the picture frame.

3. Holding the 1st curtain cylinder to prevent deflection of the position shown in Fig. 2, fit 2126 and stop it with 2131 (curtain ribbon guide plate.....P. 31). After that, check for deflection of the position (Fig. 2)

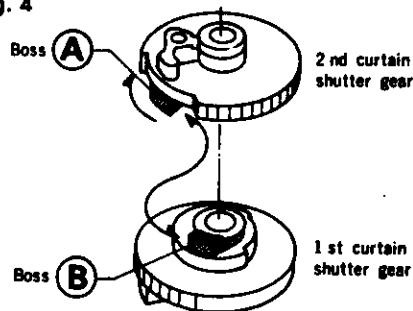
2nd curtain position adjustment

1. Shift the 2nd curtain shutter gear upward and turn it to the position shown in Fig. 3. Turn the 2nd curtain cylinder clockwise and hold it in the position shown in Fig. 3.

■ Fig. 3

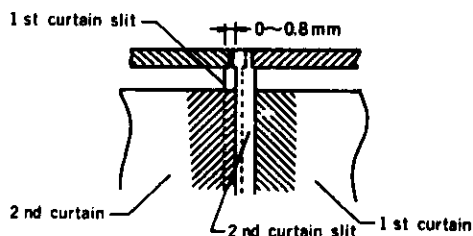


■ Fig. 4



2. Turn the 2nd curtain shutter gear (Fig. 3) clockwise while pressing it down (slightly applying a force to the 2nd curtain cylinder clockwise) so that boss A is engaged with boss B.
3. Check to be sure that the 2nd curtain slit is positioned as shown in Fig. 5.

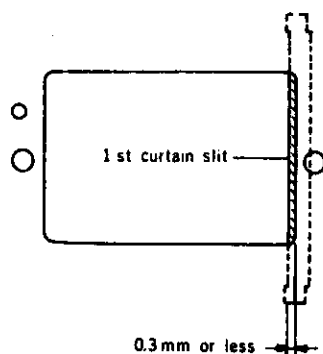
■ Fig. 5 2nd curtain position (with its travel completed)



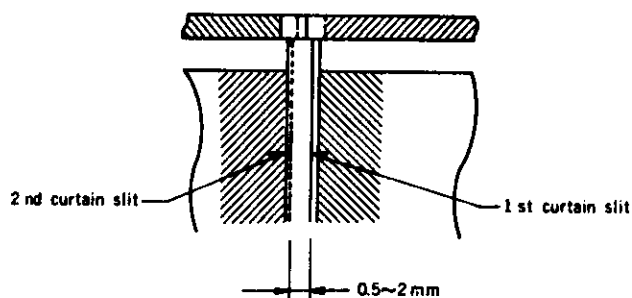
■ Checking curtain stop position (with winding completed)

① 1st curtain stop position

■ Fig. 1 (Slit remaining in picture frame)



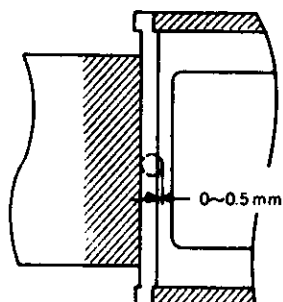
■ Fig. 2 (Overlapping of the curtains)



② 2nd curtain stop position

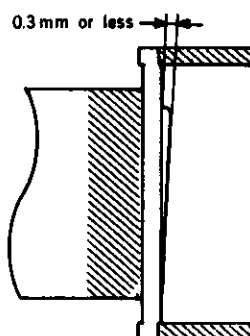
(check while letting the 1st curtain travel.)

■ Fig. 3 (Deflection from reference hole)



③ Curtain tilt (deflection from picture frame)

■ Fig. 4



- Check both 1st and 2nd curtains at the edges of the picture frame.

Shutter assembly-II

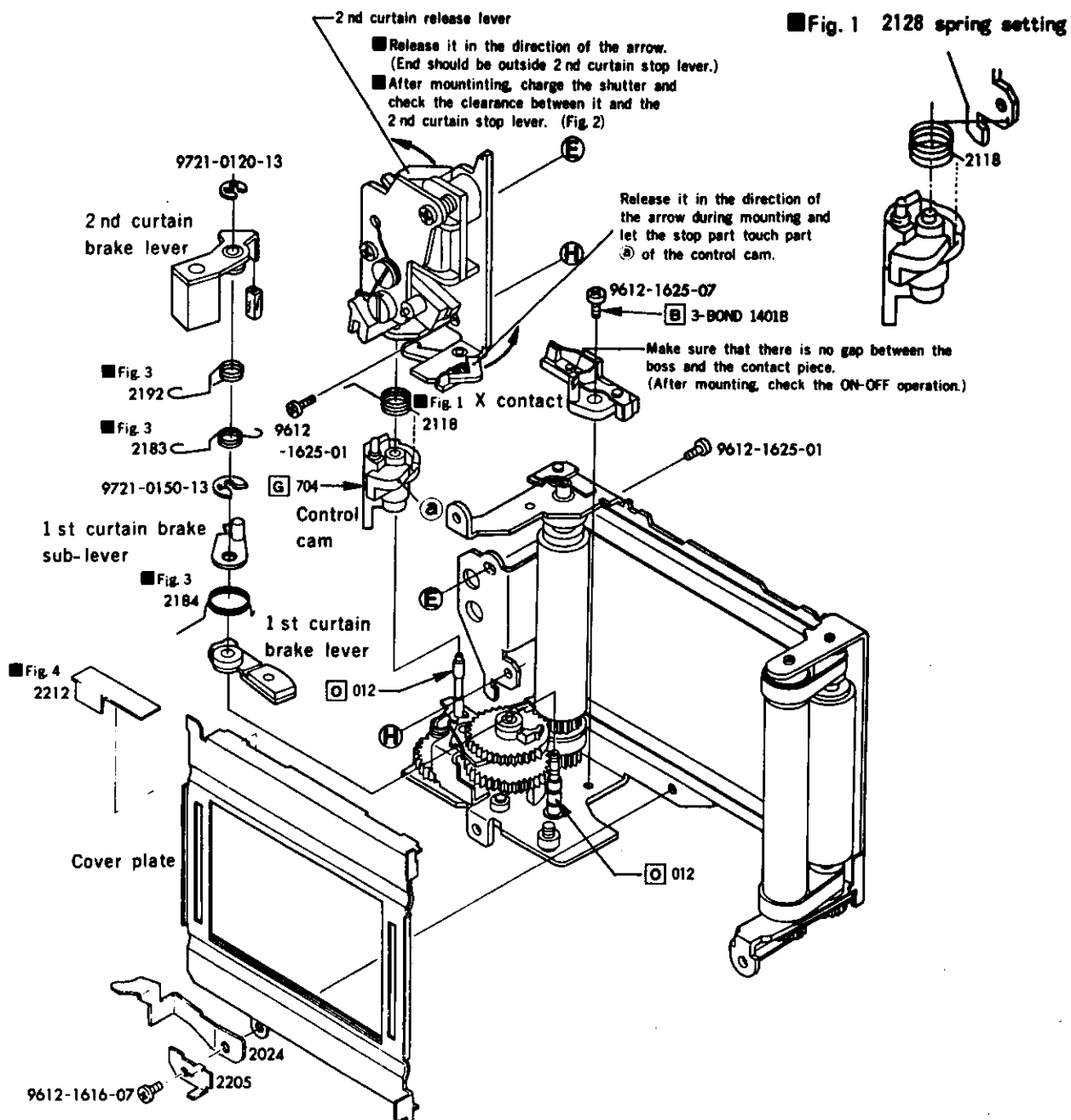
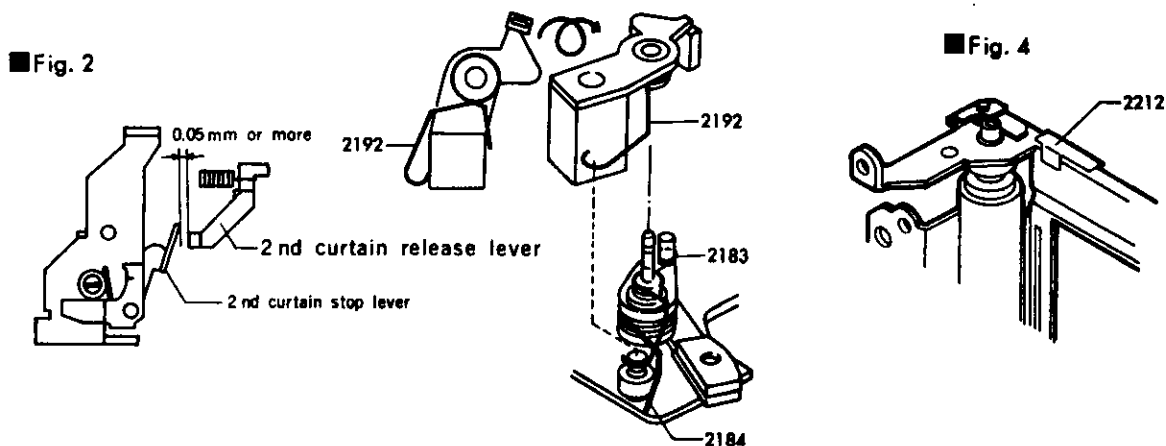


Fig. 3 2183, 2184, 2192 spring setting



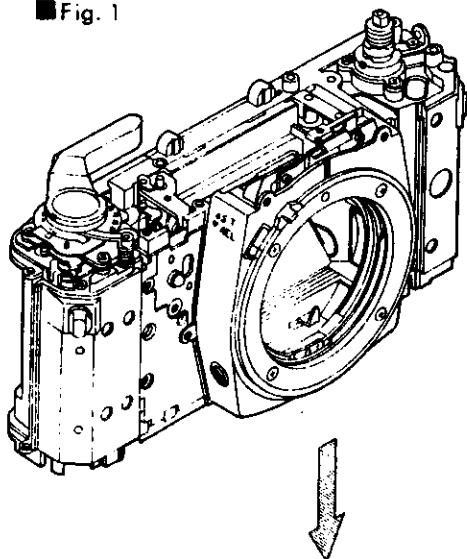
Shutter block adjustment

- **Measuring instruments:** Camera standard tester (Model ST-5101)
: Shutter tester (Model S-2101, FS-1DMN4)

■ **Preparations**

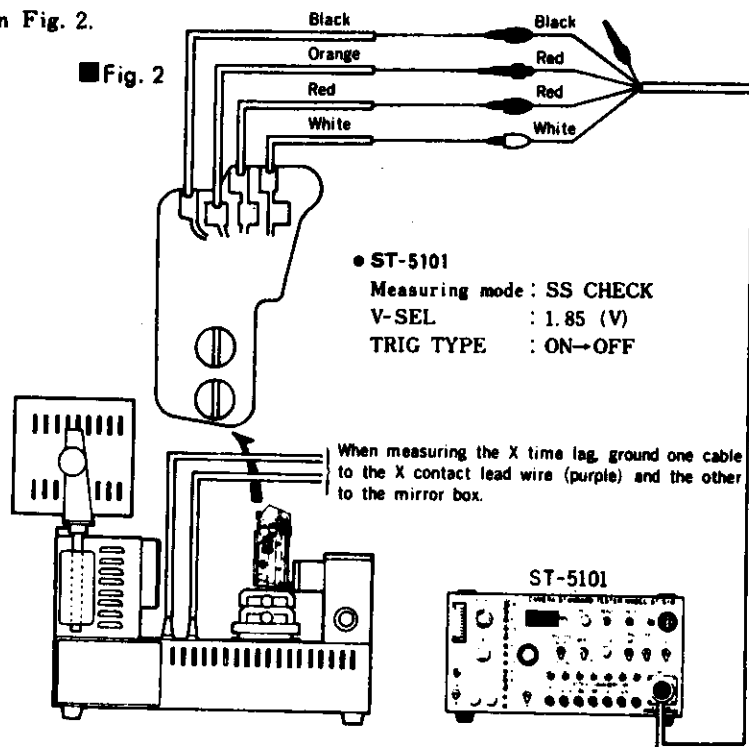
1. Mount the shutter onto the front base plate block and install it onto the body (as shown in Fig. 1).
2. Connect the tester as shown in Fig. 2.

■ Fig. 1



Operate the shutter as described on P. 15.

■ Fig. 2



■ **Adjustment procedure**

① **Curtain speed adjustment**

1. Set the SS-SEL of ST-5101 to 1000 and adjust by turning the curtain spring cylinder shaft so that both curtain speeds are $11 \pm 0.3 \text{ ms}$. (Fig. 3)
 - When the curtain is not open, shift SS-SEL to 60 and make a rough adjustment beforehand so that both curtain speeds are about 12 ms, and then adjust again with the SS-SEL set to 1000.

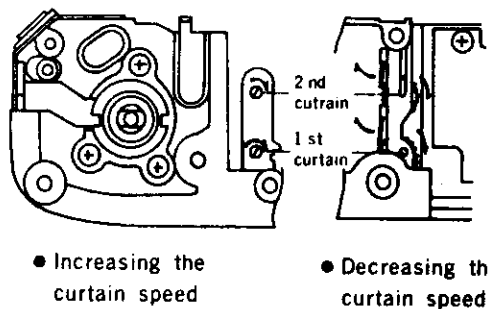
② **Shutter speed adjustment**

1. With the SS-SEL set to 1000, release the shutter and adjust by turning the S_3 eccentric pin so that the shutter tester indicates 0.98 ms . (Fig. 4)

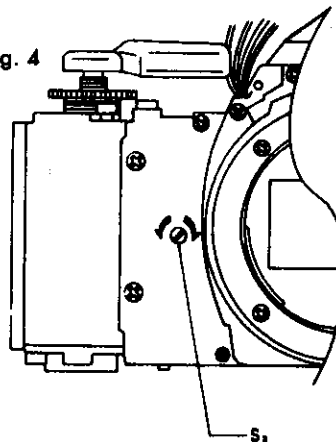
③ **X time lag adjustment**

1. Connect the synchro cord of the shutter tester to the camera. (Fig. 2)
2. With the SS-SEL set to 60, release the shutter and check to be sure that the speed is 0.4 ms or more in range A and 2.4 ms or more in range B.
To make the adjustment, bend the end of the X contact.

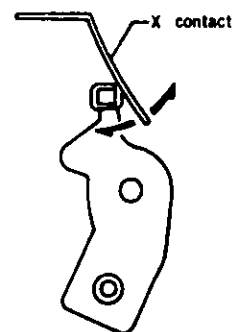
■ Fig. 3



■ Fig. 4

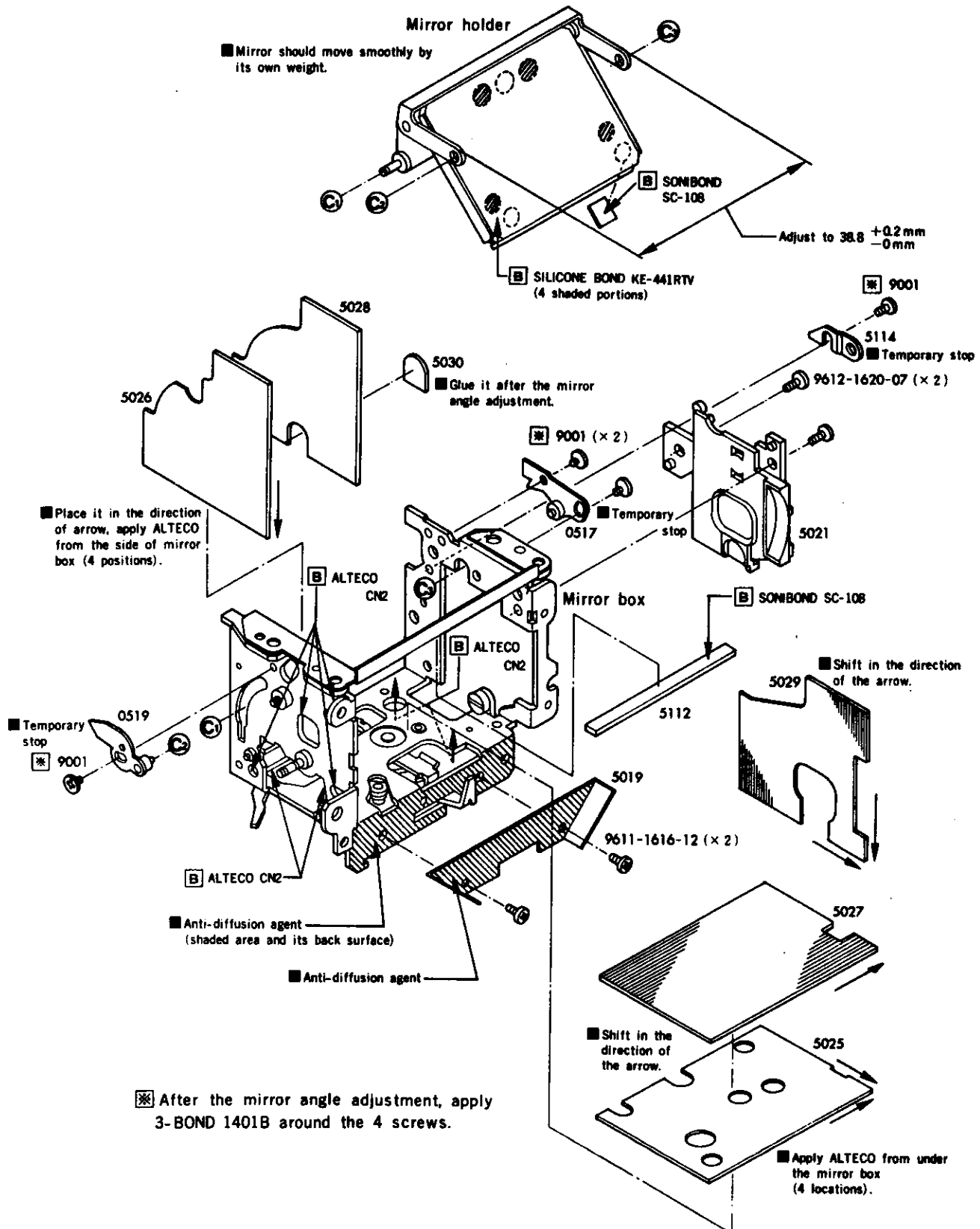


■ Fig. 5



■ Mirror box assembly-I

- Dilute one part of anti-diffusion agent (FC-721) with ten parts of solvent (FC-77).



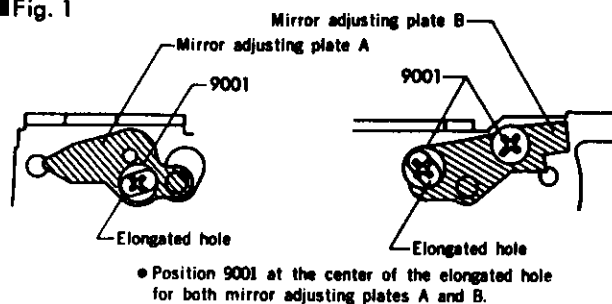
■ Mirror angle adjustment

■ Measuring instrument : Mirror angle adjuster (Model MA-III, II)

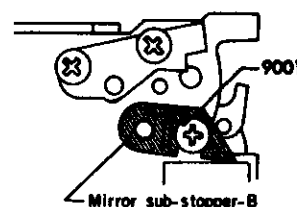
■ Preparations

1. Mount the mirror box on the front base plate.
2. Loosen the setscrew (9001) of mirror adjusting plate A and B, position them as shown in Fig. 1, and then slightly tighten 9001. Completely shift the mirror sub-stopper-B down as shown in Fig. 2.
3. Set the front base plate block onto the mirror angle adjuster.

■ Fig. 1



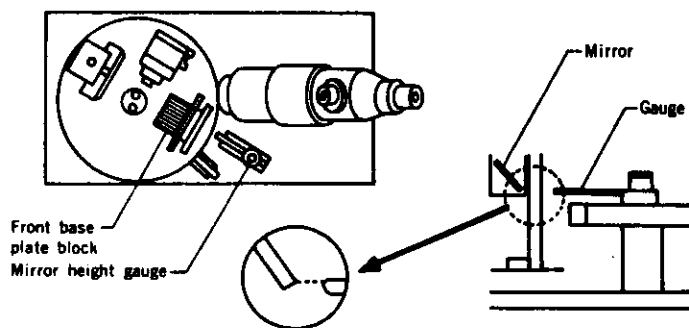
■ Fig. 2



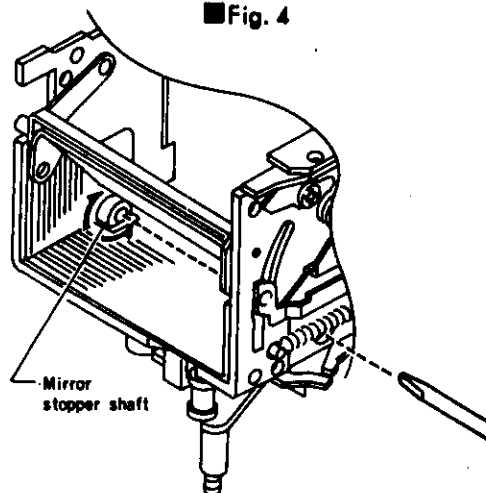
■ Adjustment procedure

1. Set the mirror height gauge and front base plate block opposite to each other and adjust by turning the mirror stopper shaft so that the gauge end is aligned with the mirror end. (Insert a screwdriver into the hole beside the mirror box.)

■ Fig. 3

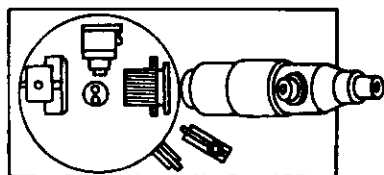


■ Fig. 4

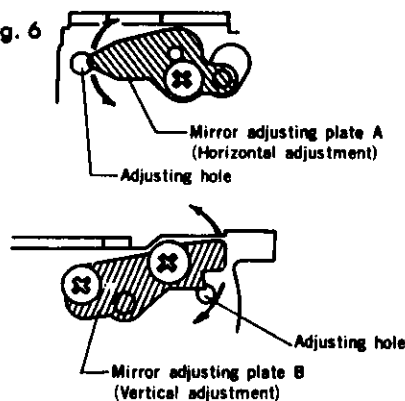


2. Place the front base plate block opposite to the auto collimator. Looking into the auto collimator, move mirror adjusting plate A and B in the direction of the arrow in Fig. 6. (By turning a ⊕ screwdriver with its tip inserted into adjusting hole) until the center of the chart image is aligned with the center of the cross (Fig. 7), and then tighten setscrew (9001).

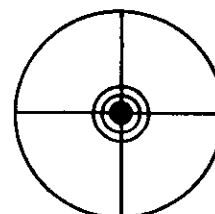
■ Fig. 5



■ Fig. 6

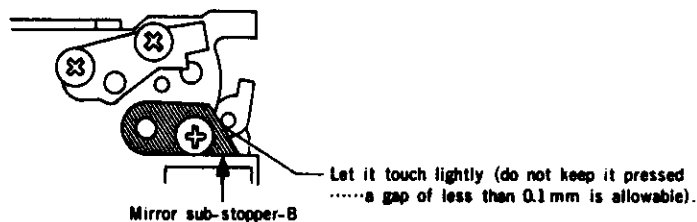


■ Fig. 7



3. Push up the mirror sub-stopper-B until its end lightly touches the mirror operation lever pin, and then tighten the setscrew.

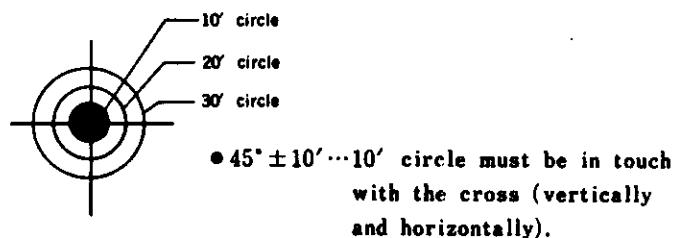
■ Fig. 8



4. Operate the mirror several and make sure that the chart image is within the standard

$45^\circ \pm 10'$

■ Fig. 9



- If it is not within the standard $45^\circ \pm 10'$, perform adjustments 1~3 again.

5. After completing the adjustment, apply screw-lock (3-BOND 1401B) to the screw head of mirror adjusting plates A, B, and the mirror sub-stopper, and adhere the flare prevention sheet B (5030...P. 37)

■ Sub materials

■ Grease

- #3340
- #335
- #704

■ Anti-diffusion agent

- FC-721
(Dilute with solvent FC-77 by 1 : 10)

■ Oil

- #012

■ Adhesives

- 3-BOND 1401B
- PLIOBOND
- SILICON-BOND KE-441RTV
- ALTECO CN2
- LOCKTITE 242
- SONIBOND SC-108
- EVERGRIP

■ Cleaner

- FLONSOLVE

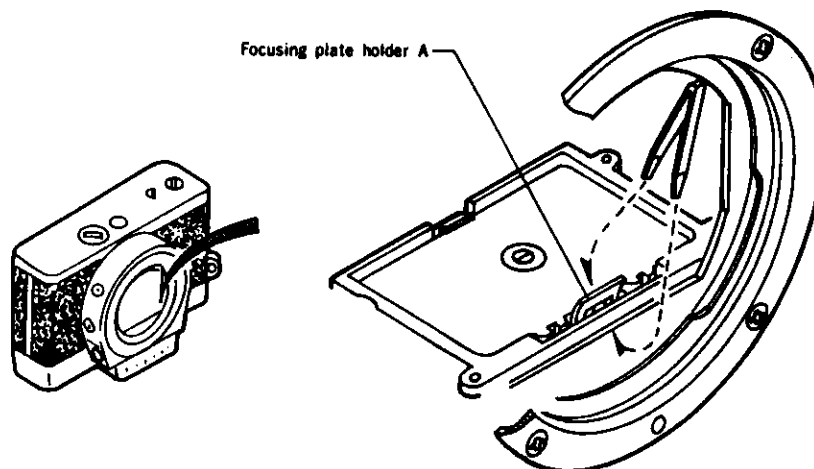
■ Focusing plate replacement procedure

■ For view finder cleaning without camera disassembly or focusing plate replacement follow the procedure given below.

■ Removal

Insert the tweezers between the focusing plate and focusing plate holder A. Slightly tilt the tweezers to raise the focusing plate for removal.

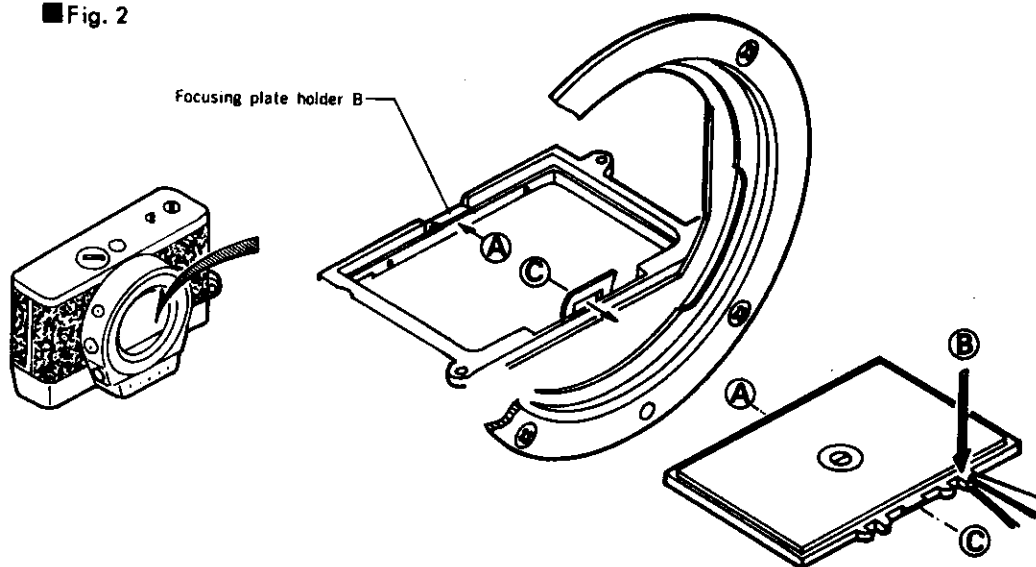
■ Fig. 1



■ Mounting

Hold the focusing plate as illustrated; fit part (A) onto the bend of focusing plate holder B; press down arrow-marked part (B); and insert projection (C) into the hold of focusing plate holder A.

■ Fig. 2



■ Mounting check

After mounting the focusing plate, check that the view finder back and EE level are correctly positioned.

TROUBLE-SHOOTING

1. Use of Trouble-shooting

1. This trouble-shooting chart describes symptoms and causes of troubles found on the camera side.
2. Even when trouble is found on the camera side, its cause is not always attributable to the malfunction of the camera in relation to the exchangeable lens, winder, motor drive and exclusive flash. Therefore, use this trouble-shooting chart upon confirmation of trouble on the camera after checking combined performance with the accessories according to claim contents.

2. Description

1. Trouble described here is due to a single case only. Trouble due to a plurality of causes should be checked collectively on the basis of the causes listed in this chart.
2. This trouble-shooting deals mainly with electrical causes, as well as covering part of mechanical causes.

3. Servicing Precautions

1. Type 2507 digital multimeter is basically used for measurement. Any other kind of measuring instrument, however, may be used, if its minimum input impedance is more than $10M\Omega$.
2. Use this tester for voltage checks and a tester of less than 3 V for measuring conduction.
3. Trouble is most unlikely to occur in electronic parts, such as ICs, diodes, transistors, resistors, and capacitors. Therefore, check the cause of trouble, with the focus on the defective soldering of lead wires and electrical parts, and switching contacts.
4. When checking soldered or plated parts, avoid pressing the parts or pulling lead wires unnecessarily.
5. Since voltage measuring parts are narrow, mount a pin or something similar at the tip of an alligator clip for measurement.
6. When measuring switching patterns, special care should be taken so that the patterns outside switch operation are free from flaws. For switch contacts, measure their base, which is not directly affected by contact pressure.
7. Be sure to turn off the power switch before removing electrical parts (when a constant-voltage regulated power supply is used).
8. The ideal temperature range for the soldering iron tip is 290°C to 340°C . If the temperature is higher, however, perform soldering quickly. Also, be sure to clean the chip when soldering.

4. Description on Trouble-shooting Table and Trouble-shooting Chart

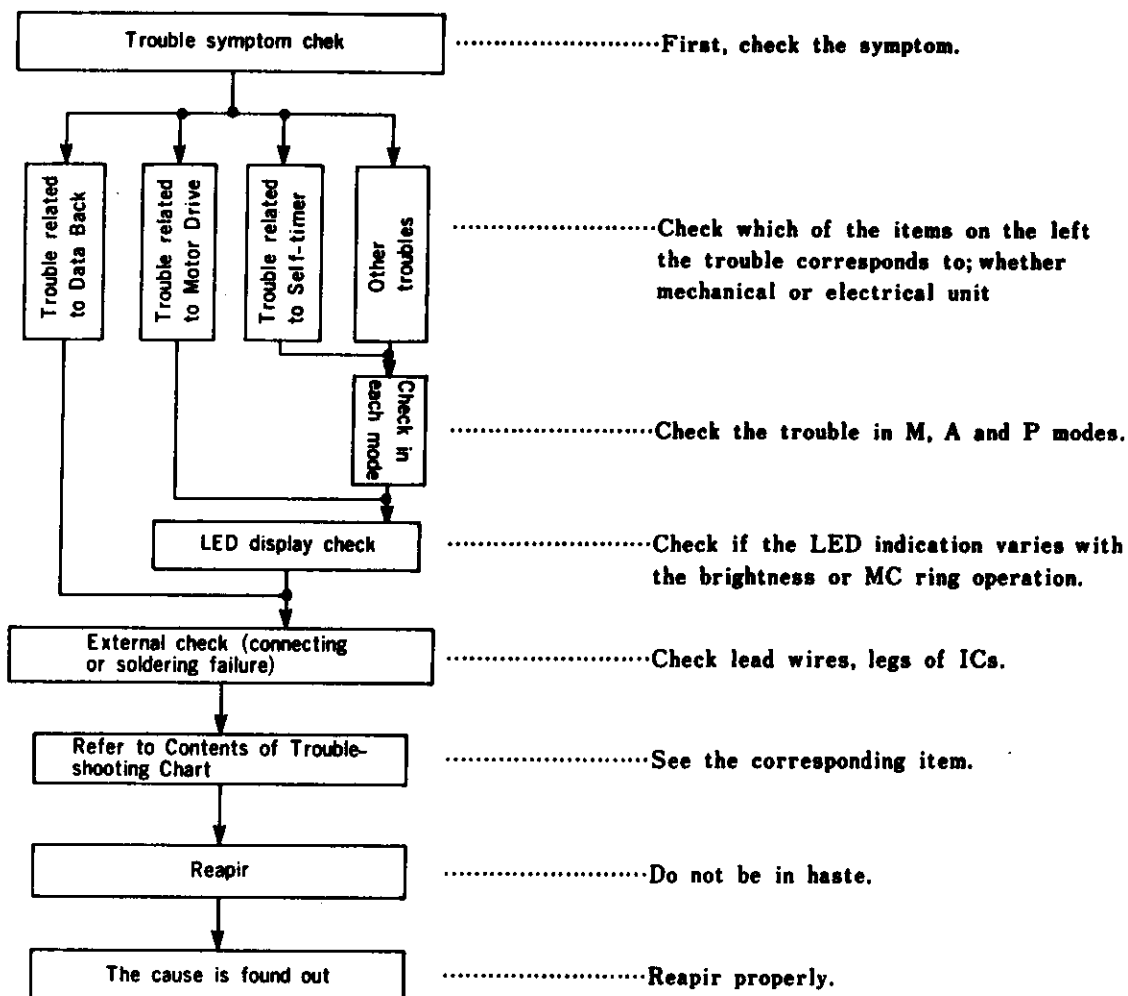
4-1. Trouble-shooting Table

1. From symptom, trouble cause can be found.
2. The Trouble-shooting Table combines the "INDEX" and summary of details of "Trouble-shooting Chart".
Accordingly, use those properly as the needs of the case demand.

4-2. Trouble-shooting Chart

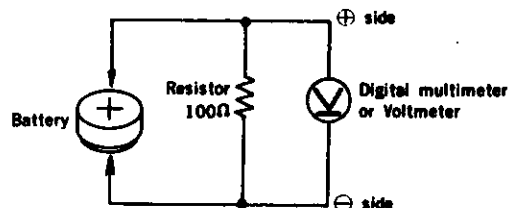
1. The chart presents the checkpoints to be followed from the symptom to finding the cause of trouble.
2. The voltage for each checkpoint is the value when SW_0 or SW_1 is ON upon completion of film winding (before releasing). It is a potential difference from \ominus of power supply.
3. For all trouble symptoms other than "Electromagnetic release does not operate," check their cause, assuming that the electromagnetic release operates properly.
4. The chart shows the check in the ☐ is done by operation and in the ☐ by measurement.

5. Repair procedure



6. Battery Capacity Check

1. A 100Ω resistor is paralleled with the battery at normal temperature ($25 \pm 25^\circ\text{C}$), as illustrated. A digital multimeter or voltmeter is connected to the battery in parallel to the resistor to measure the voltage. In this case, be sure to perform quick measurement.
2. The battery, with its voltage more than 1.4 V, is regarded as normal.



for Trouble-shooting Table/Chart

I. Trouble related mechanism (Winding and shutter releasing are impossible).....P. 6, 7

- ☐ A Returning winding lever to original position after winding completion, shutter curtains return to position of shutter released.

For the cause or repairing method related mechanism trouble, refer to Trouble-shooting Chart.

I. Trouble related electro unit

Symptom	Cause	Page	SW	Lead Wire	VR	SL	R	C	Q	J (Lamp load)	IC-1	IC-2	OTHERS
Shutter release failure	No LEDs light, shutter is not released--Release impossible even with Main SW. (S ₁) ON--OFF--ON operation.	8	6	22(Red)					1	2	37, (40-41)	21, 29, (31-32), (33-44), (44-45)	Joint part a-c XL
	LEDs remain light, and shutter is not released with release SW. (S ₂) ON--Release impossible even with Main SW. (S ₁) ON--OFF--ON operation.	8	2, ④	④(Yellow) 36(Grey)		12			4	4, 5		43	
	With release SW. (S ₁) ON, LEDs go out, but shutter is not released--Release impossible, and LEDs light with Main SW. (S ₁) ON--OFF--ON operation.	8		22(Green) SL ₁ (Green, White, White)		1	7	7	2		10, 11	15	
	Shutter is not released with remote control SW. (S ₃) ON--Release possible with operating button operation.	9		18(Grey) 28(Black)									
	Shutter is not released even though self-timer LED lights with metering SW. (S ₅ or S ₁) ON--No flasher LEDs light.	9								1	39		
	Main SW. (S ₁) ON makes shortcircuit, resulting in shutter release impossible and no lighting LEDs.	9		④(Red)									Joint part (b-c)
	Main SW. (S ₁) and metering SW. (S ₅ or S ₁) ON make shortcircuit, resulting in release impossible and no LEDs lighting.	9				⑤	④						
	After shutter releasing with Main SW. (S ₁) ON--OFF--ON, release impossible and no LEDs light.	9	4	21(Yellow)								42, (45-46)	
	Shutter is released when winding up.	9	②, ①	④(Grey), ⑤(Grey) ⑥(Grey)									Remote control shortcircuit
	LEDs light and, shutter release is impossible with Main SW. (S ₁) OFF.	9											Joint part (a-c)
Finder indication failure	No LEDs light with metering SW. (S ₅ or S ₁) ON--Shutter operates normally.	10	0, 1	35(Brown)		9						37, 49	Joint part 1
	No LEDs light with metering SW. (S ₅ or S ₁) ON--Shutter stays open with self-timer LED ON when released.	10										14	
	Only "M" does not light.	10										50, (49-50)	Joint part 2
	Part of LEDs does not light.	10										1-9, 50-56	Joint part 2-17
	Self-timer LED lights with Main SW. (S ₁) ON.	10		⑤(Grey)						(12-13)			
	LEDs light with Main SW. (S ₁) ON.	10	① ⑥	④(Yellow) ⑤(Brown)									
	LEDs light by Main SW. (S ₁) ON with shutter speed dial set at 30-1000 or A.	10										(36-37)	
	When voltage is under specified B.C. voltage, shutter release lock does not operate with LEDs ON--No mode LED blinks.	11								3		23	
	When decreasing voltage, mode LED remains ON--does not blink--No LEDs light when release locked.	11								2		24	

[illegible]

Symptom	Cause	Page	SW	Lead Wire	VR	SL	R	C	Q	J	KC-1	KC-2	OTHERS
PV (Preview) PV failure	Stop-down metering is impossible with PV button pushed in.	16	9	9(Light blue)						35			
	Pushing PV button in high luminance makes ◯ blinking, and keeping shutter open as A.	16								31-35			
	Pushing PV button in low luminance makes ◯ blinking, and operating shutter is high speed in A mode.	16	⑨	⑨(Light blue)									
Flash firing failure (Check in A mode using AEF 280PX)	Undesired stop-down metering.	16											
	LED indication is normal with flash fully charged. But flash does not fire properly; (1) Flash fires manually always. FDC signal is not indicated. (Time counter does not indicate normally/long when checking strobe level)	17		SPC-2 (Purple, White)	3			2			4, 5, 18, 19, 30, 31, 38 (19-20) (25-26) (35-37) (38-39) (41-42)	20, 22 (20-21) (21-22)	SPC-2
	(2) Insufficient firing with FDC signal ON...Time counter shows short value when checking strobe level.	17		SPC-2 (White)			5	2			36 (18-19) (21-22) (25-26) (31-32)		SPC-2
	(3) Excessive firing with normal indication of FDC...Time counter shows long value when checking strobe level	17					2				(17-18)		
	(4) Flash does not fire. Shutter stays open.	17		SX 1 SX 2 27(Pink), 29(Purple) 28(Pink)									F ₁ terminal Sync terminal
	(5) Flash does not fire. Shutter operates as Auto X.	17									(37-38)		F ₂ terminal
	LED indication failure with flash fully charged. (1) Flash fires manually always. Manual shutter speed LEDs light on. Shutter does not operate as Auto X.	18		30(White)⑩							1, 41	25	F ₂ terminal
	(2) "1/60" does not blink. Mitered shutter speed LEDs blink. Firing without shutter operated as Auto X.	18		30, 31(Vic versa)							43	27	
	(3) "1/60" does not blink. Mitered shutter speed LEDs blink. Firing without shutter operated as Auto X.	18									44	26	
	(4) "1/60" blinks. Mode LED (A) does not blink. Manual firing with shutter operated as Auto X.	18		31(Brown)⑪							38		F ₂ terminal
Flash firing failure (Check in A mode using AEF 280PX)	(5) No mode LED lights.	18								42	28		Ground is not connected at hot shoe
	(6) Flash does not fire. Mode LED, metered shutter speed LEDs, and "1/60" blink.	18		25(Black), 26(Black)									Sync terminal short-circuited
	(7) "1/60" does not blink. Mitered shutter speed LEDs light on. Shutter does not operate as Auto X...Monitor lamp of flash unit will not light up.	18	(S12) ⑪(Pink)	⑪(Pink), ⑩(Purple) ⑩(Pink)									W ₁ terminal
	Wiring is impossible by motor drive.	19										48	W ₂ terminal
	No LEDs light with metering SW (S ₂ or S ₁) ON of Motor Drive.	19										47	W ₂ terminal
	Shutter is not released by Motor Drive.	19											W ₂ terminal
	Shutter is not released with Multi-Function Back as FII mode.	19		19(Black) 20(Grey)									D ₂ terminal, D ₁ terminal
	Aperture indicator does not light.	19		18(Brown)								46	D ₁ terminal
	Shutter releases when wiring with Multi-Function Back attached.	19		19, 20(Vic versa)*									
	Piezo buzzer does not sound.	19		Buzzer(Red, Black) 41(Red)								13	Piezo buzzer
Others													

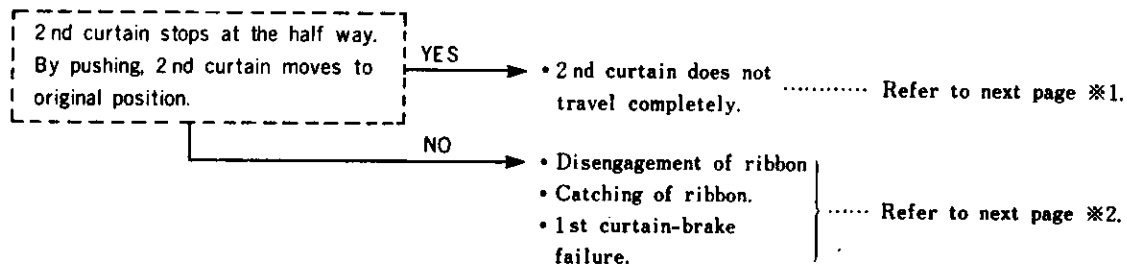
I. Trouble related mechanism

(Winding and shutter releasing are impossible).

A. Returning winding lever to original position after winding completion, shutter curtains return to position of shutter released.

- Under-charge → Adjust the shutter charge following Service Manual Repair Guide P. 16.
- Looseness of winding shaft riveting (0338) → Replace winding shaft.

B. Appearing of shutter curtain slit.

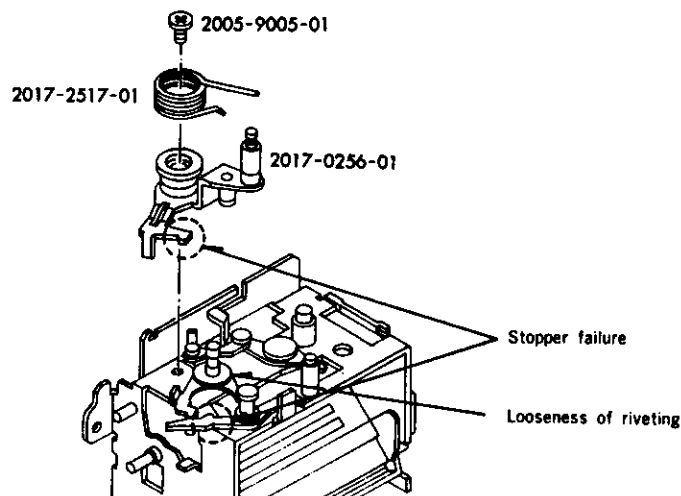


C. Charge operation plate set does not return at winding completed.

- Winding operation lever does not work properly. Refer to next page ※3.
- (Stiff
Disconnection of SP.
Deformation of SP.)

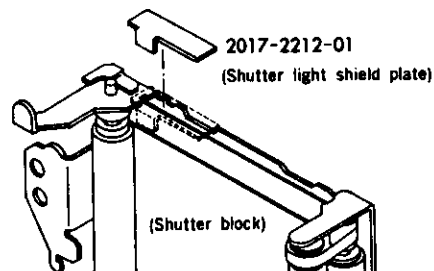
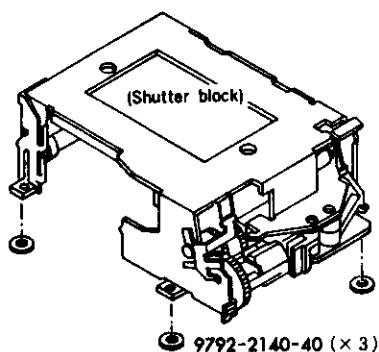
D. Others

- Charge lever bent. → Adjust or replace.
- Disconnection of charge lever from charge roller. → Adjust or replace the charge lever and charge roller.
- Disengagement of mirror holder rivet. → Replace the mirror holder. (Adjust and check the mirror angle)
- Foreign particle on the mirror holder.
- MP return lever set (0256) stopper failure.
- Looseness of MP return lever riveting shaft. } Refer to following figure.



※ 1. 1st curtain does not travel completely.

- Use 3 washers (t=0.2mm) between front base plate and shutter block installing position to prevent the catching of MP return lever shaft and shutter cover plate.
- Stick the shutter light shield plate as illustrated because there is possibility of light leakage when using washers.

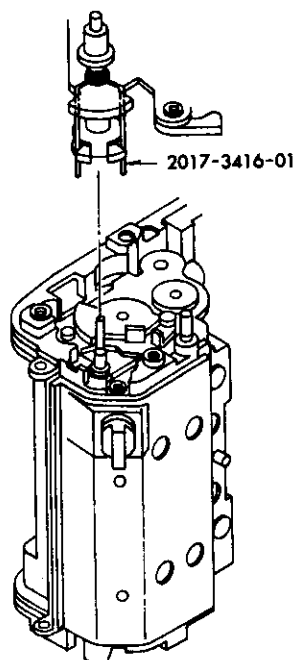
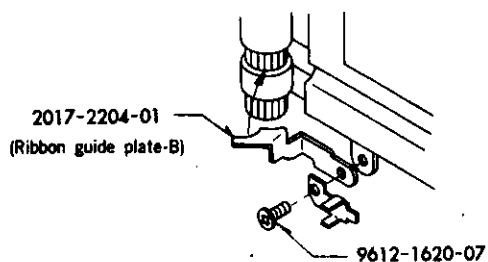


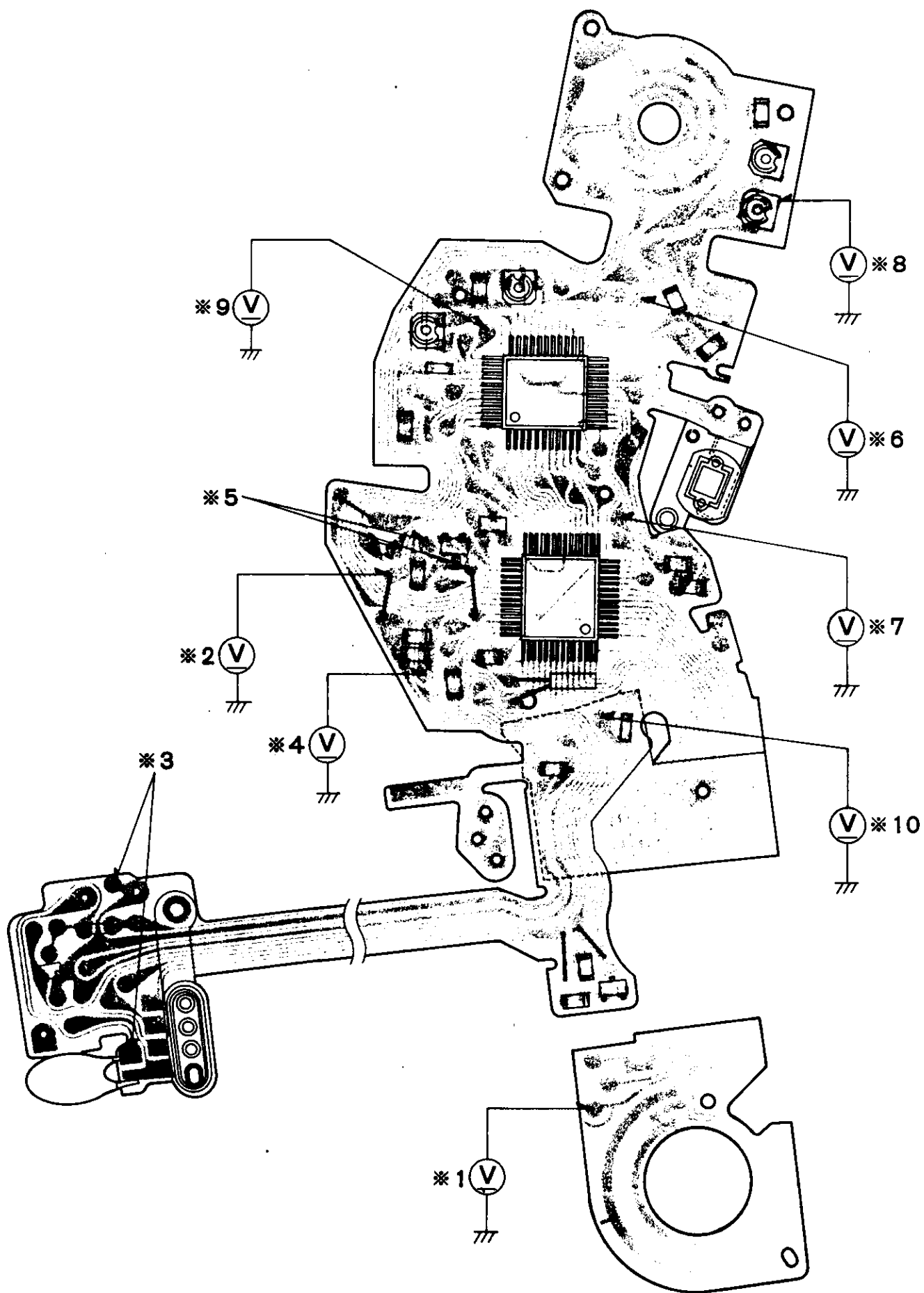
※ 2. Disengagement or catching of shutter ribbon.

- Replace with new shutter block, however, repair as following method for minor trouble.
- Use ribbon guide plate-B to prevent the 1st curtain catching with 2nd curtain shutter gear.

※ 3.

- Clean the winding operation lever and the holder.
- Adjust the spring (3416) shape or replace it.



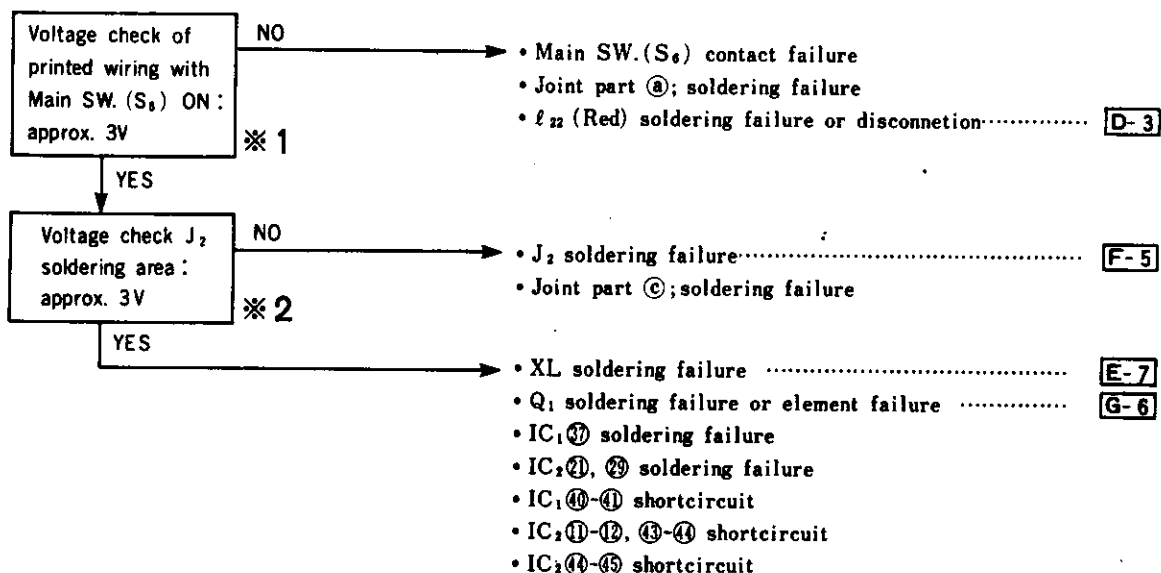


II. Trouble related to electro unit

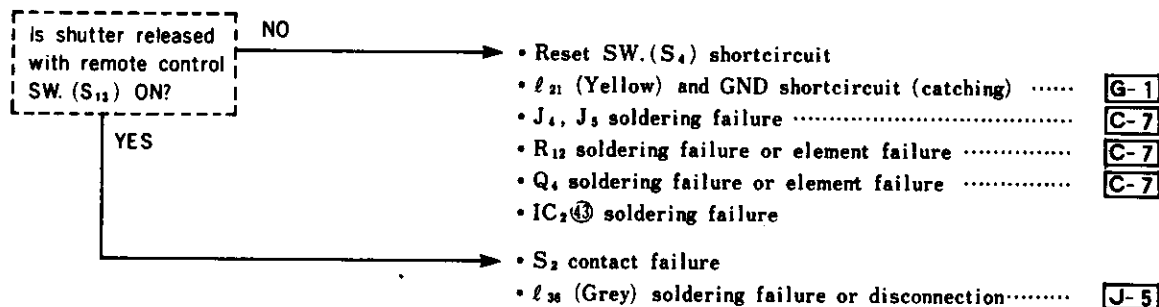
- ※1~※10 show the check point on the diagram left.
- **A-6** or the like on the right shows the position (coordinate) on the schematic wiring diagram (P.25).

A Shutter release failure

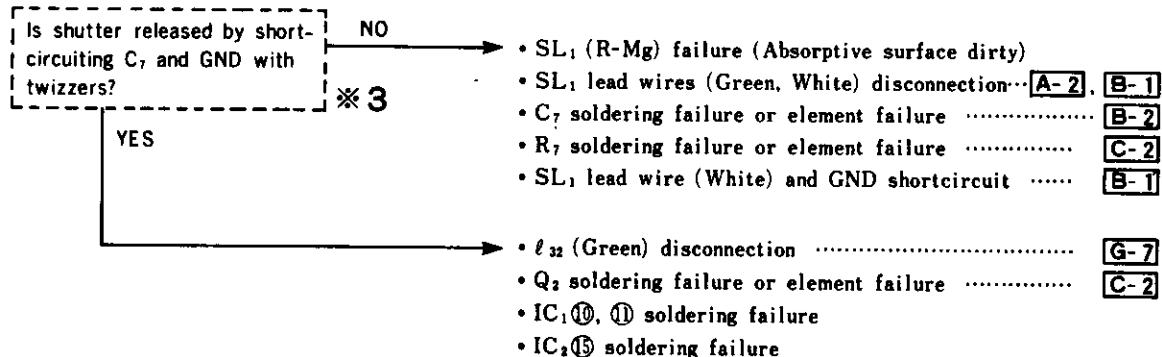
① No LEDs light, shutter is not released...Release impossible even with Main SW. (S₆) ON→OFF→ON operation.



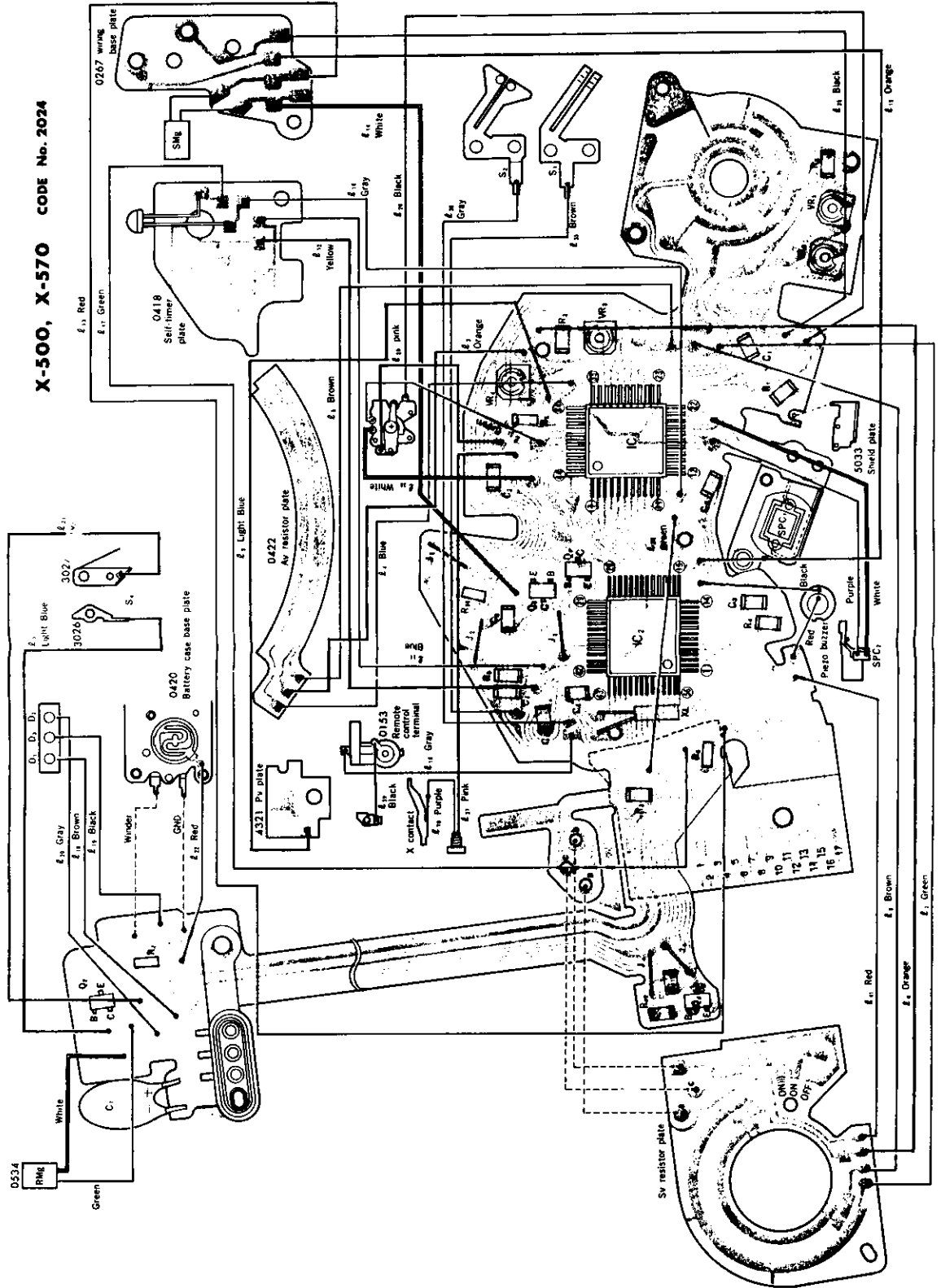
② LEDs remain light, and shutter is not released with release SW. (S₂) ON.....
(Release impossible even with Main SW. (S₆) ON→OFF→ON operation.



③ With release SW. (S₂) ON, LEDs go out, but shutter is not released.....
(Release impossible, and LEDs light with Main SW. (S₆) ON→OFF→ON operation.



X-500, X-570 CODE No. 2024



Assy. Part No. 2024-0401-01

Assy. Part Name Flexible P.C. board set
フレキシブル基板セット

Symbol	Part No.	Com	Part Name	Type.	Qty.
Q1	9363-1032-01	02,03	Transistor	2SA1162 SO,SY,SG	1
Q2	9362-1261-02	03		2SD1048 X7,X8	1
Q3,Q4	9362-1032-01	02,03		2SC2712 LO,LY,LG,LL	2
XL	9373-4162-01		Crystal resonator	C-002R	1
SPC1	2024-0491-01		Silicon photo cell		1
R4,R1	9432-2246-62		Fixed resistor	1/8W 220K Ω	2
R2	9432-1036-62			1/8W 10K Ω	1
R3	9432-1536-62			1/8W 15K Ω	1
R5	9422-6826-62			1/8W 6.8K Ω	1
R6	9422-1016-62			1/8W 100 Ω	1
R7	9422-1026-62			1/8W 1K Ω	1
R8	9432-3357-61			1/8W 3.3M Ω	1
R9	9432-1068-61			1/8W 10M Ω	Choose one from these
	9432-2068-61			1/8W 20M Ω	
	9432-3068-61			1/8W 30M Ω	
R11	9422-6836-62			1/8W 68K Ω	Choose one from these
	9422-8236-62			1/8W 82K Ω	
	9422-1246-62			1/8W 120K Ω	
	9422-1846-62			1/8W 180K Ω	
	9422-3946-62			1/8W 390K Ω	
R12	9431-3348-62			1/16W 330K Ω	1
VR3	9472-2239-64		Variable resistor	EVM-04G 22K Ω	1
VR4	9472-3329-63			EVM-14G 3.3K Ω	1
VR5	9472-1539-63			EVM-14G 15K Ω	1
VR6	9472-1039-63			EVM-14G 10K Ω	1
C1	9565-1034-64		(Ceramic)	0.01 μ F/50V	1
C2	9564-3324-61		(Ceramic)	3300PF/25V	1
C3	9564-4734-64		(Ceramic)	0.047 μ F/25V	1
C4	9564-1034-61		(Ceramic)	0.01 μ F/25V	1
C5,C6	9564-2204-65		Condenser (Ceramic)	22PF/25V	2
C7	9531-1575-61		(Tantalum)	150 μ F/3.15V	1
C8	9565-3338-65		(Ceramic)	0.033 μ F/50V	1
C9	9565-4705-62		(Ceramic)	47PF/50V	1
C10	9565-4738-65		(Ceramic)	0.047 μ F/50V	1
Q32	9391-0807-05		Lead wire-Green	60.08/7 ϕ =35	1

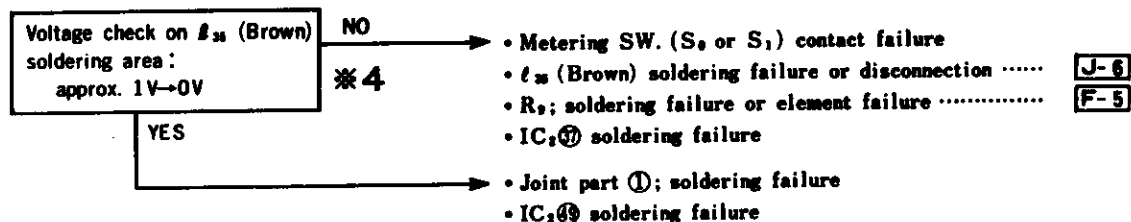
- ④ Shutter is not released with remote control SW. (S₁₂) ON
 (Release possible with operating button operation.)
 → • l₁₀ (Grey) soldering failure or disconnection **E-5**
 • l₂₀ (Black) soldering failure or disconnection **D-4**
- ⑤ Shutter is not released even though self-timer LED lights with metering SW. (S₀ or S₁) ON
 No finder LEDs light.
 → • J₁ soldering failure **G-5**
 • IC₁ ③ soldering failure
- ⑥ Main SW. (S₀) ON makes shortcircuit, resulting in shutter release impossible and no lighting LEDs.
 → • The joint parts b) - c) shortcircuit
 • l₁₃ (Red) and GND shortcircuit **I-2**
- ⑦ Main SW. (S₀) and metering SW. (S₀ or S₁) ON make shortcircuit, resulting in release impossible and no LEDs lighting.
 → • R₀ shortcircuit **F-5**
 • C₄ shortcircuit **E-6**
- ⑧ After shutter releasing with Main SW. (S₀) ON→OFF→ON, release impossible and no LEDs light.
 →

Normal shutter speed when releasing
Shutter curtains travel without slit when releasing.

 → • Reset SW. (S₄) contact; contact failure
 • l₂₁ (Yellow) soldering failure or disconnection **G-1**
 • IC₂ ⑫ soldering failure
 → • IC₂ ⑬-⑭ shortcircuit
- ⑨ Shutter is released when winding up.
 → • Release SW. (S₂) shortcircuit
 • l₁₀ (Grey) and GND shortcircuit **E-5**
 • l₂₀ (Grey) and GND shortcircuit **D-1**
 • l₃₀ (Grey) and GND shortcircuit **J-5**
 • Shortcircuit between remote control SW. (S₁₂) contact and spring (2024-4460)
 • Remote control terminal shortcircuit
- ⑩ LEDs light and, shutter release is impossible with Main SW. (S₀) OFF.
 → • Joint parts a - c shortcircuit

③ Finder indication failure

- ① No LEDs light with metering SW. (S_0 or S_1) ON
 (Shutter operates normally.)



- ② No LEDs light with metering SW. (S_0 or S_1) ON
 Shutter stays open with self-timer LED ON when released.

→ • IC₂⑩ soldering failure

- ③ Only "M" does not light.

→ • Joint part ②, soldering failure
 • IC₂⑤ soldering failure
 • IC₂④⑤-⑤⑥ shortcircuit

- ④ Part of LEDs does not light.

Check soldering failure of IC₂, flexible P.C board...joint part referring to the table below.

Finder LED	M	A	△	1000	500	250	125	60	30	15	8	4	2	1	▽	B
IC ₂ pin No.	⑤⑥	⑤①	⑤②	⑤③	⑤④	⑤⑤	⑤⑥	①	②	③	④	⑤	⑥	⑦	⑧	⑨
Joint part No.	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17

- ⑤ Self-timer LED lights with Main SW. (S_0) ON.

→ • ℓ_{18} (Grey) and GND shortcircuit J-5
 • IC₁⑫-⑬ shortcircuit

- ⑥ LEDs light with Main SW. (S_0) ON.

→ • Metering SW. (S_0 or S_1) and GND shortcircuit
 • AE lock SW. (S_{14}) and GND shortcircuit
 • ℓ_{12} (Yellow) and GND shortcircuit J-4
 • ℓ_{38} (Brown) and GND shortcircuit J-6

- ⑦ LEDs light by Main SW. (S_0) ON with shutter speed dial set at 30~1000 or A.

→ • IC₂⑤⑥-⑦ shortcircuit

⑧ When voltage is under specified B.C voltage, shutter release lock does not operate with LEDs ON.....No mode LED blinks.

- IC₁ ③ soldering failure
- IC₂ ② soldering failure

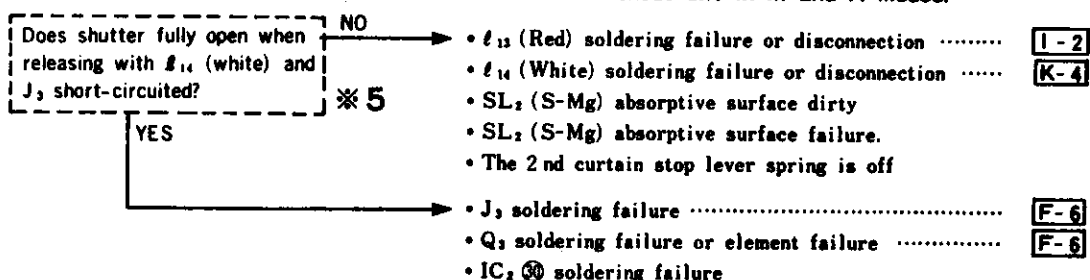
⑨ When decreasing voltage, mode LED remains ON; does not blink
.....No LEDs light when release locked.

- IC₁ ② soldering failure
- IC₂ ③ soldering failure

C Shutter failure

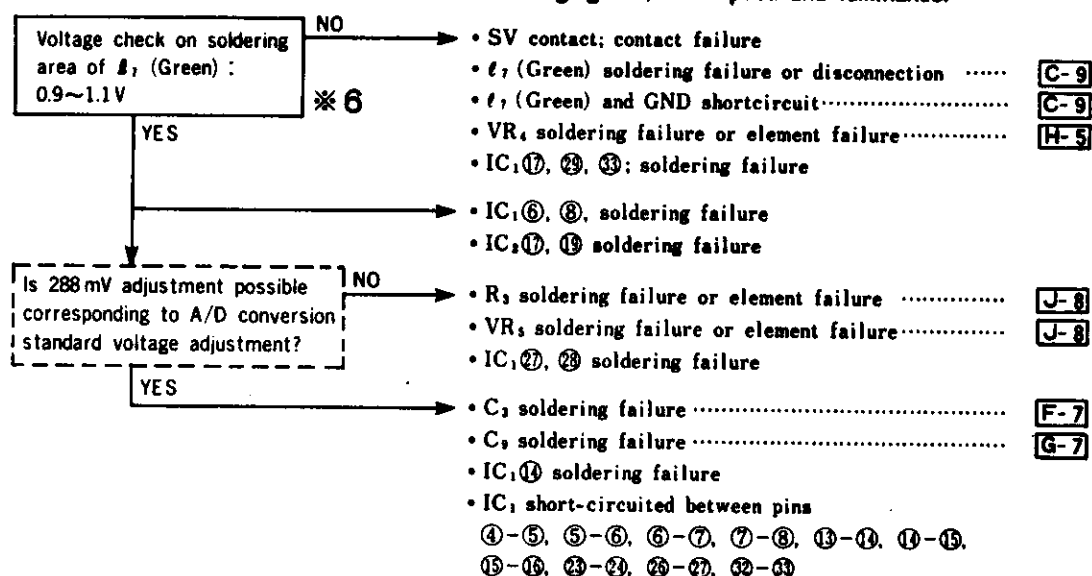
C-1 Shutter curtains travel in high speed, or without slit

① LED indication is normal. Shutter curtains travel without slit in M and A modes.



② In A mode shutter operates in high speed with Δ blinking.

(1) LED indication remains the same when changing AV, film speed and luminance.



(2) LED indication remains the same only when changing AV

.....Check by rotating aperture ring.

- ℓ_3 (Orange) soldering failure or disconnection [I-5]
- MC brush deformed (Printed wiring short-circuited)

(3) LED indication remains the same only when film speed changing

.....Check by rotating film speed ring.

- ℓ_4 (Brown) soldering failure or disconnection [C-9]

(4) LED indication does not change in accordance with luminance

.....Check by changing luminance.

- SPC₁ A and K shortcircuit [G-8]
- IC₁ ①-② shortcircuit

(3) LEDs are normal. In M and A modes shutter curtains travel without slit when set to high speed.Normal at slow speed

- Trigger SW. (S₂) contact failure
- ℓ_{15} (Orange) soldering failure or disconnection [K-9]
- ℓ_{15} (Orange) connected to the next printed wiring
- (IC₁ ⑬) by mistake [K-9]

(4) In A and M modes, shutter speed remains 1/60 with LEDs "M" and "1/60" lighting.

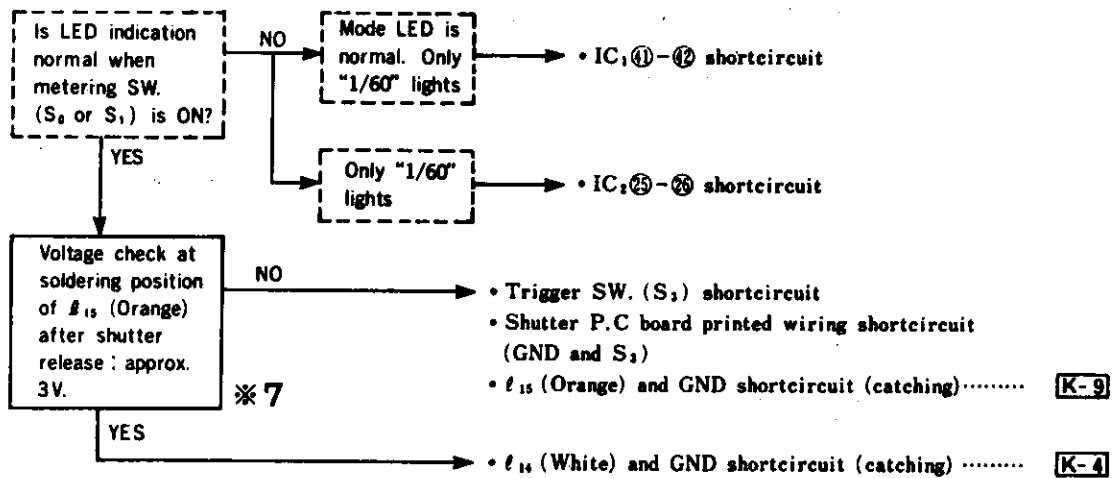
- Looseness of auto lock button guide on TV P.C board.
- GND contact at TV SW.; contact failure

(5) LED indication is normal. Occasional high shutter speed under darkness.

- IC₁ ⑦ soldering failure
- IC₂ ⑮ soldering failure

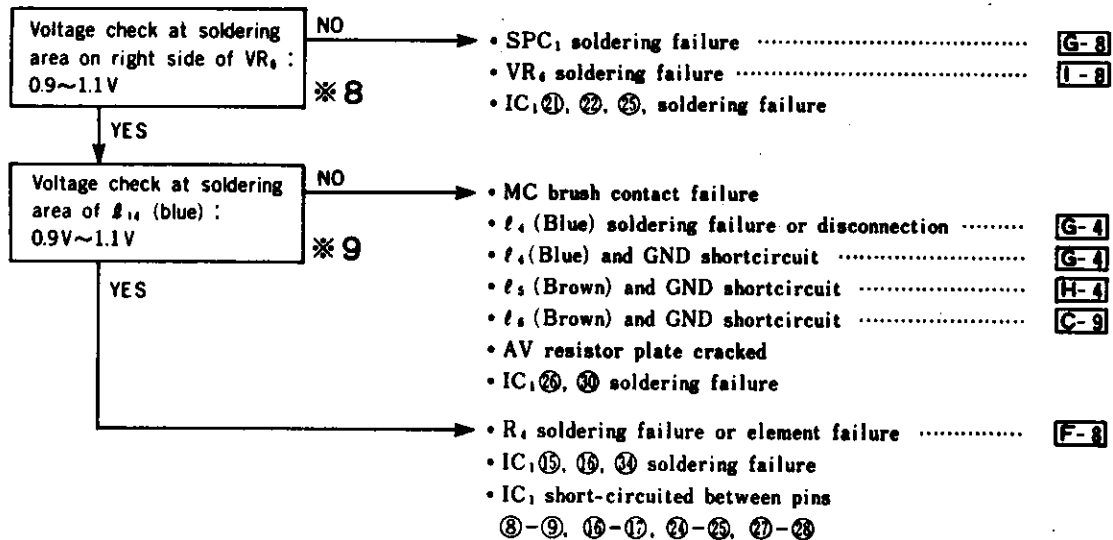
C-2 Shutter remains open

- ① LED indication is normal. Shutter stays open in M and A modes
Slow shutter speed limit, 4 sec., does not operate.

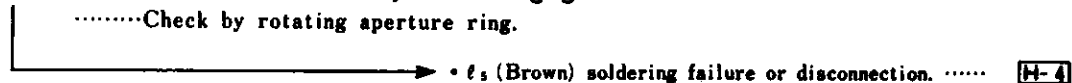


- ② In A mode, shutter stays open with ▽ blinking
Slow shutter speed limit does not operate.

- (1) LED indication remains the same when AV, film speed, and luminance changing.



- (2) LED indication remains the same only when changing AV



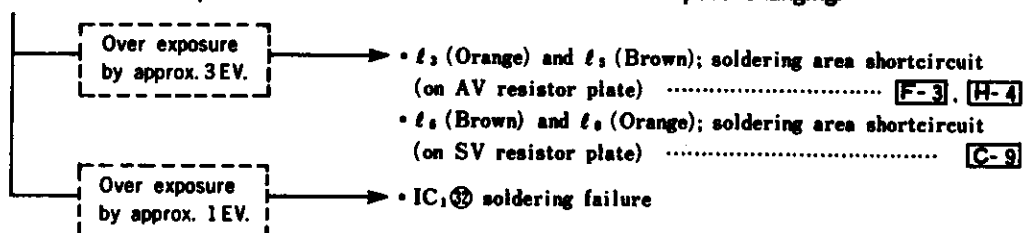
C-3 Others

① In A mode, LED indication and shutter speed operate as slow shutter speed
.....Over exposure.

(1) LEDs and shutter speed remain the same only when film speed changing
.....Check by turning film-speed ring.

- ℓ_1 (Orange) soldering failure or disconnection
- ℓ_2 (Orange) and ℓ_4 (Blue); soldering area shortcircuit
(on AV resistor plate) **F-3**, **G-4**
- ℓ_5 (Brown) and ℓ_7 (Green); soldering area shortcircuit
(on SV resistor plate) **C-9**
- Deformed brush on SV resistor plate
(printed wiring shortcircuit)
- IC₁ ②-④ shortcircuit

(2) LEDs and shutter speed remain the same when AV and film speed changing.



② In M mode, shutter does not operate in accordance with speed set by shutter speed dial
.....LEDs indicate operating shutter speed.

- Check if brush is deformed on TV SW.
- By turning shutter speed dial, check voltage of printed wiring (T_A~T_D) or voltage IC₁ ③~④. Then compare to the table below.

Shutter speed setting and corresponding voltage on printed wiring in normal condition.

Shutter speed and LED indication	Voltage of printed wiring on TV P.C board			
	T _A IC ₁ ③	T _B IC ₁ ④	T _C IC ₁ ③	T _D IC ₁ ④
M1000	3.0	3.0	0	0
M 500	3.0	0	0	0
M 250	3.0	0	3.0	0
M 125	0	0	3.0	0
M 60	0	3.0	3.0	0
M 30	0	3.0	0	0
M 15	0	3.0	0	3.0
M 8	3.0	3.0	0	3.0
M 4	3.0	0	0	3.0
M 2	0	0	0	3.0
M 1	0	0	3.0	3.0
B	0	3.0	3.0	3.0
A	3.0	3.0	3.0	0

- By brush contact failure on TV SW, the voltage becomes 3.0V resulting in different shutter speed and LED indication.
- Replace flexible P.C board set with new one, when shutter is failure with voltage within the range.

③ Excessive deflection of LED indication and shutter speed from AV and film speed setting.

- ℓ_1 (Orange) and GND shortcircuit **I-5**
- ℓ_2 (Orange) and GND shortcircuit **C-9**

D Self-timer failure

① Shutter release without delay

.....No self-timer LED blinks.

- Self-timer SW. (S₁₀) contact failure
- ℓ_{11} (Blue) soldering failure or disconnection **F-5**
- Looseness of self-timer plate screw
- IC₂⑩ soldering failure

② Shutter release without delay

.....Self-timer LED blinks after shutter release.

- IC₁⑨-⑩ shortcircuit
- IC₂⑮-⑯ shortcircuit

③ Shutter release with delay for 10-sec

.....No self-timer LED blinks.

Voltage check at soldering
area of ℓ_{17} (Green) :
approx. 3.0V

NO

※ 10

- R₈ soldering failure or element failure **E-7**
- Shortcircuit between self-timer LED (anode) and GND

YES

- ℓ_{16} (Grey) soldering failure or disconnection **J-4**
- ℓ_{17} (Green) soldering failure or disconnection **I-2**
- LD₁₇ (self-timer LED) failure
- IC₁⑨, ⑫ soldering failure
- IC₂⑮ soldering failure

④ Shutter release impossible with self-timer

.....Self-timer LED does not blink.

- IC₁⑬ soldering failure

⑤ Shutter operates in high speed with self-timer in A mode.

- IC₁⑧-⑨ shortcircuit
- IC₂⑮-⑰ shortcircuit

⑥ Shutter release with delay for 10-sec., locking AE.

- Self-timer plate printed wiring shortcircuit
- IC₂⑩-⑪ shortcircuit

⑦ Self-timer operates always.

- Self-timer SW. (S₁₀) deformation.
(Shortcircuit between GND and printed wiring)
- ℓ_{11} (Blue) and GND shortcircuit (catching) **F-5**

E AE lock failure**①** AE lock does not operate.

- AE lock SW. (S₁₄) contact failure
- ℓ_{12} (Blue) soldering failure or disconnection **I-4**
- Looseness of self-timer plate screw
- IC₂④; soldering failure

② AE lock operates always.

- AE lock SW. (S₁₄) deformation
(Shortcircuit between GND and printed wiring)
- ℓ_{12} (Yellow) and GND shortcircuit (catching) **I-4**

③ AE lock operates only after shutter release

.....Shutter release is impossible with AE lock SW. locked.

- IC₂①-② shortcircuit

F PV (preview) failure.**①** Stop-down metering is impossible with PV button pushed in.

- PV SW. (S₉) contact failure
- ℓ_9 (Light blue) soldering failure or disconnection... **G-3**
- IC₁⑤ soldering failure

② Pushing PV button in high luminance makes ∇ blinking, and keeping shutter open in A mode.
Pushing PV button in low luminance makes \triangle blinking, and operating shutter in high speed in A mode.

- IC₁④-⑤ shortcircuit

③ Undesired stop-down metering

- PV SW. (S₉) deformation (shortcircuit with GND)
- ℓ_9 (Light blue) and GND shortcircuit (catching)... **G-3**

G Flash firing failure. (Check in A mode using AEF 280PX)

I LED indication is normal with flash fully charged. But flash does not fire properly.

(1) Flash fires manually always, FDC signal is not indicated.

.....Time counter does not indicate normally/long when checking strobe level)

- SPC₂ lead wires (Purple, White) disconnection..... **F-9**
- SPC₂ failure **F-9**
- C₂ shortcircuit **G-5**
- VR₂ soldering failure or element failure..... **I-6**
- IC₁ ④, ⑤, ⑬, ⑭, ⑳, ㉑, ㉒, soldering failure
- IC₂ ㉓, ㉔, soldering failure
- IC₁ ⑬-⑳, ㉔-㉕, ㉖-㉗, ㉘-㉙ shortcircuit
- IC₂ ㉓-㉔, ㉕-㉖ shortcircuit

(2) Insufficient firing with FDC signal ON

.....Time counter shows short value when checking strobe level.

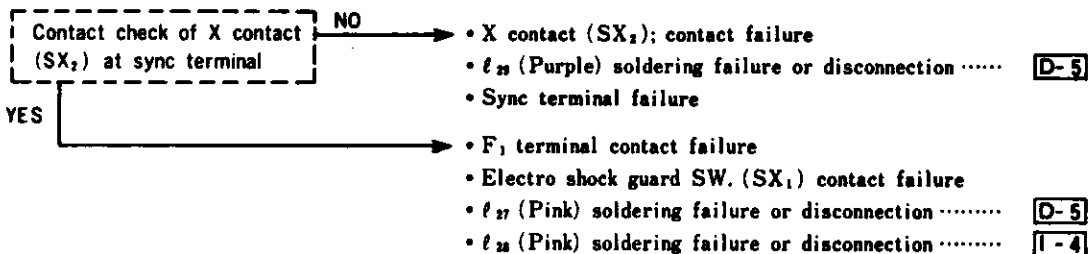
- SPC₂ lead wire (White) and GND shortcircuit..... **F-9**
- C₂ soldering failure or element failure **G-5**
- R₂ soldering failure or element failure **H-6**
- SPC₂ shortcircuit
- IC₁ ㉖ soldering failure
- IC₁ ⑬-⑳, ㉔-㉕, ㉖-㉗, ㉘-㉙, ㉕-㉖ shortcircuit

(3) Excessive firing with normal indication of FDC

.....Time counter shows long value when checking strobe level.

- R₂ soldering failure or element failure **I-6**
- IC₁ ⑬-⑳ shortcircuit

(4) Flash does not fire. Shutter stays open.



(5) Flash does not fire. Shutter operates as Auto X.

- IC₁ ㉗-㉘ shortcircuit

(2) LED indication failure with flash fully charged

(1) "1/60" does not blink. Metered shutter speed LEDs light on. Shutter does not operate as Auto X.....Flash does not fire depending on camera other than in M mode.

- • F₂ terminal contact failure
- ℓ₃₀ (White) soldering failure or disconnection G-5
- ℓ₃₀ (White) and GND shortcircuit (catching) G-5
- IC₁①, ④ soldering failure
- IC₂② soldering failure

(2) "1/60" does not blink; remains ON. Flash fires with shutter operated as Auto X.

- Proper firing → • IC₁③ soldering failure
- Manual firing → • IC₂⑦ soldering failure
- • ℓ₃₀ (White) and ℓ₃₁ (Brown) reversely soldered..... G-5, H-5

(3) "1/60" does not blink. Metered shutter speed LEDs blink. Firing without shutter operated as Auto X.

- • IC₁④ soldering failure
- IC₂⑥ soldering failure

(4) "1/60" blinks. Mode LED (A) does not blink. Manual firing with shutter operated as Auto X.

- • F₃ terminal contact failure
- ℓ₃₁ (Brown) soldering failure or disconnection H-5
- ℓ₃₁ (Brown) and GND shortcircuit (catching) H-5
- IC₁⑤ soldering failure

(5) No mode LED lights

- • IC₁② soldering failure
- IC₂⑧ soldering failure

(6) Flash does not fire. Mode LED, metered shutter speed LEDs, and "1/60" blink.

- • Ground is not connected at hot shoe
- ℓ₂₅ (Black) soldering failure or disconnection K-8
- ℓ₂₆ (Black) soldering failure or disconnection J-4

(7) "1/60" does not blink. Metered shutter speed LEDs light on. Shutter does not operate as Auto X.....Monitor lamp of flash unit will not light up.)

- • X contact (Sx₂) shortcircuit
- Sync terminal shortcircuit
- ℓ₂₇ (Pink) and GND shortcircuit (catching) D-5
- ℓ₂₈ (Pink) and GND shortcircuit (catching) I-4
- ℓ₂₉ (Purple) and GND shortcircuit (catching) D-5

[H] Failure with Motor Drive using**[1] Winding is impossible by motor drive.**

-
- W₃ contact failure
 - W₃ riveting failure or soldering failure
 - IC₂⑧ soldering failure

[2] No LEDs light with metering SW. ON of Motor Drive.

-
- W₁ contact failure
 - W₁ riveting failure or soldering failure
 - IC₂⑦ soldering failure

[3] Shutter is not released by Motor Drive.

-
- W₂ contact failure
 - W₂ riveting failure or soldering failure

[I] Failure with Data Back using**[1] Shutter is not released with Multi-Function Back in F I mode.**

-
- D₂ terminal contact failure
 - D₃ terminal contact failure
 - ℓ₁₉ (Black) soldering failure or disconnection **[D-2]**
 - ℓ₂₀ (Grey) soldering failure or disconnection **[D-1]**

[2] Imprint indicator does not light

-
- D₁ terminal contact failure
 - ℓ₁₈ (Brown) soldering failure or disconnection **[D-1]**
 - IC₂⑥ soldering failure

[3] Shutter releases when winding with Multi-Function Back attached.

-
- ℓ₁₉ (Black) and ℓ₂₀ (Grey) connected reversely **[D-2]**, **[D-1]**

[J] Piezo buzzer failure**[1] Piezo buzzer does not sound**

-
- Piezo buzzer lead wires (Red, Black) soldering failure or disconnection **[F-9]**
 - ℓ₄₁ (Red) soldering failure or disconnection **[C-9]**
 - IC₃⑬ soldering failure

■ IC pin voltages

Measuring conditions: ● Supply voltage---3V

● A mode---Measure with no lens attached in the room around ASA 100.

● M mode---Only difference from A mode is given in the table. (shutter speed is at 1/1000 sec.)

Pin No.	Winding completed metering (S ₀ ON)	Shutter released metering (S ₀ ON)	Pin No.	Winding completed metering (S ₀ ON)	Shutter released metering (S ₀ ON)	Pin No.	Winding completed metering (S ₀ ON)	Shutter released metering (S ₀ ON)
IC ₁ 1	0.07	0.07	IC ₁ 16	1.26	1.26	IC ₁ 31	1.0	1.0
2	3.0	3.0	17	0	0	32	0.94	0.94
3	3.0	3.0	18	0.05	0.05	33	0.16	0.16
4	A mode 0.07 M mode 0.8	A mode 0.07 M mode 0.8	19	0.1	0.1	34	1.08	1.08
5	3.0	3.0	20	0.24	0.24	35	0.7~1.5	0.7~1.5
6	1.2~1.6	1.2~1.6	21	0.05	0.05	36	3.0	3.0
7	3.0	3.0	22	0.06	0.06	37	3.0	3.0
8	1.1~1.3	1.1~1.3	23	0.5	0.5	38	0	0
9	0	0	24	0	0	39	0	0
10	0	0	25	1.08	1.08	40	1.5	1.5
11	0	0	26	1.03	1.03	41	0	0
12	1.6~2.0	1.6~2.0	27	1.15	1.15	42	3.0	3.0
13	0	0	28	1.44	1.44	43	3.0	3.0
14	1.15	1.15	29	1.04	1.04	44	3.0	3.0
15	1.15	1.15	30	1.08	1.08			

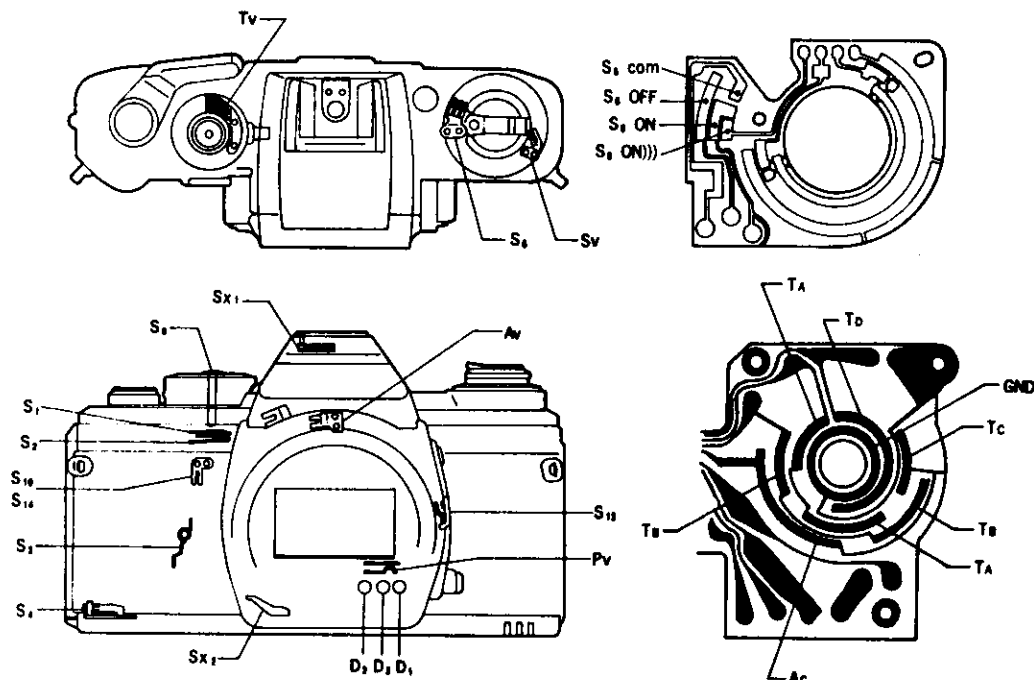
● There is possibility having difference voltage at the state of S₀ ON and S₀ OFF(metering hold).

● Above values are obtained by actual measuring, pin voltages vary slightly according to the measured camera.

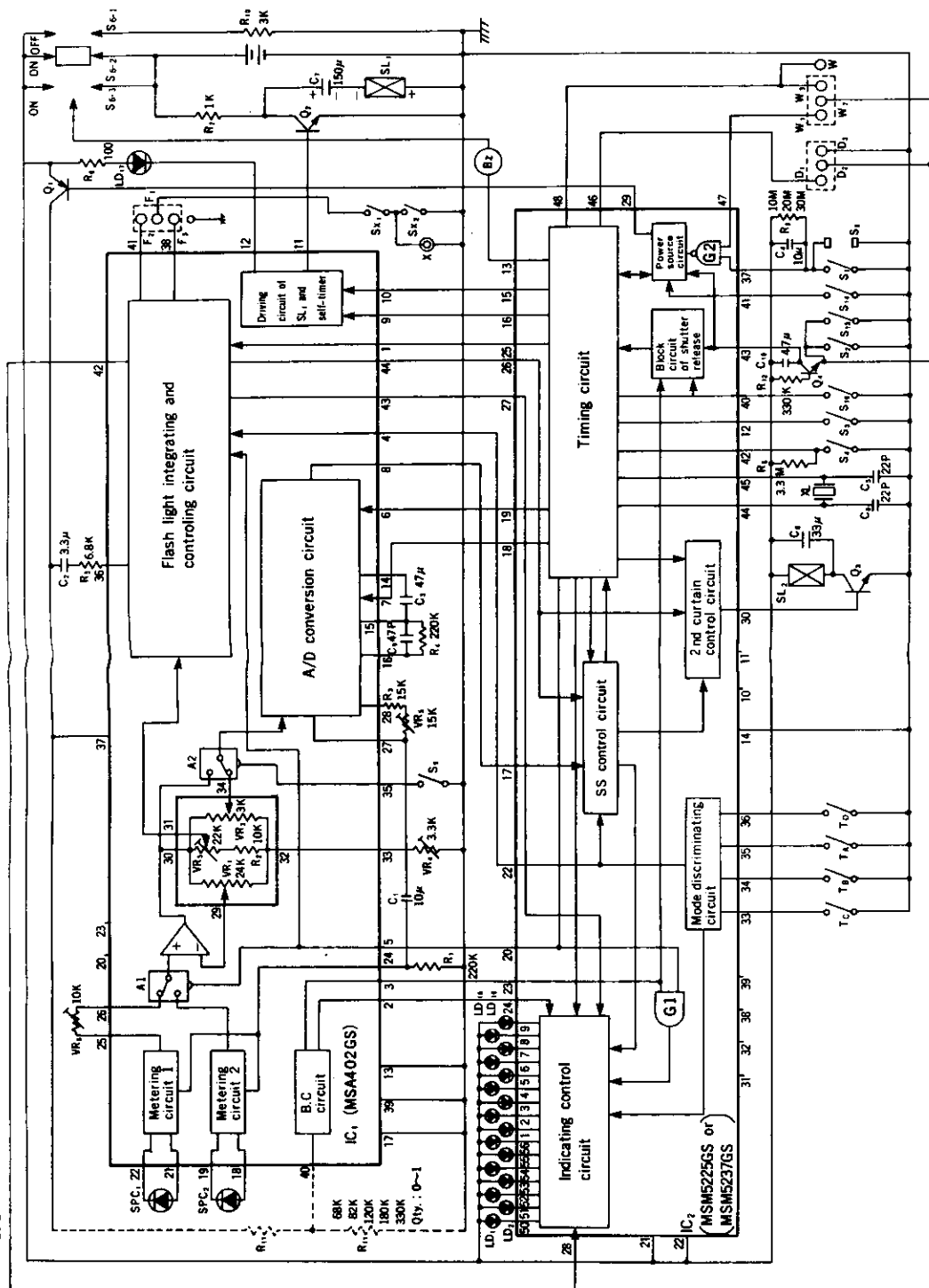
Pin No.	Winding completed metering (S, ON)	Shutter released metering (S, ON)	Pin No.	Winding completed metering (S, ON)	Shutter released metering (S, ON)	Pin No.	Winding completed metering (S, ON)	Shutter released metering (S, ON)
IC ₂ 1	3.0	3.0	IC ₂ 20	3.0	3.0	IC ₂ 39	3.0	3.0
2	3.0	3.0	21	3.0	3.0	40	3.0	3.0
3	3.0	3.0	22	A mode 0.07 M mode 0.8	A mode 0.07 M mode 0.8	41	3.0	3.0
4	3.0	3.0	23	3.0	3.0	42	2.2	0
5	3.0	3.0	24	3.0	3.0	43	3.0	3.0
6	3.0	3.0	25	0.07	0.07	44	1.5	1.5
7	3.0	3.0	26	3.0	3.0	45	1.0	1.0
8	3.0	3.0	27	3.0	3.0	46	3.0	3.0
9	3.0	3.0	28	3.0	3.0	47	3.0	3.0
10	0	0	29	2.2	2.2	48	0.1~0.5	0
11	3.0	3.0	30	0.06	0.06	49	3.0	3.0
12	0	3.0	31	3.0	3.0	50	A mode 3.0 M mode 1.2	A mode 3.0 M mode 1.2
13	3.0	3.0	32	3.0	3.0	51	A mode 1.2 M mode 3.0	A mode 1.2 M mode 3.0
14	0	0	33	A mode 3.0 M mode 0	A mode 3.0 M mode 0	52	3.0	3.0
15	0	0	34	3.0	3.0	53	A mode 3.0 M mode F	A mode 3.0 M mode F
16	0	0	35	3.0	3.0	54	1.2	1.2
17	1.1~1.3	1.1~1.3	36	0	0	55	3.0	3.0
18	3.0	3.0	37	0.6~1.8	0.6~1.8	56	3.0	3.0
19	1.2~1.6	1.2~1.6	38	3.0	3.0			

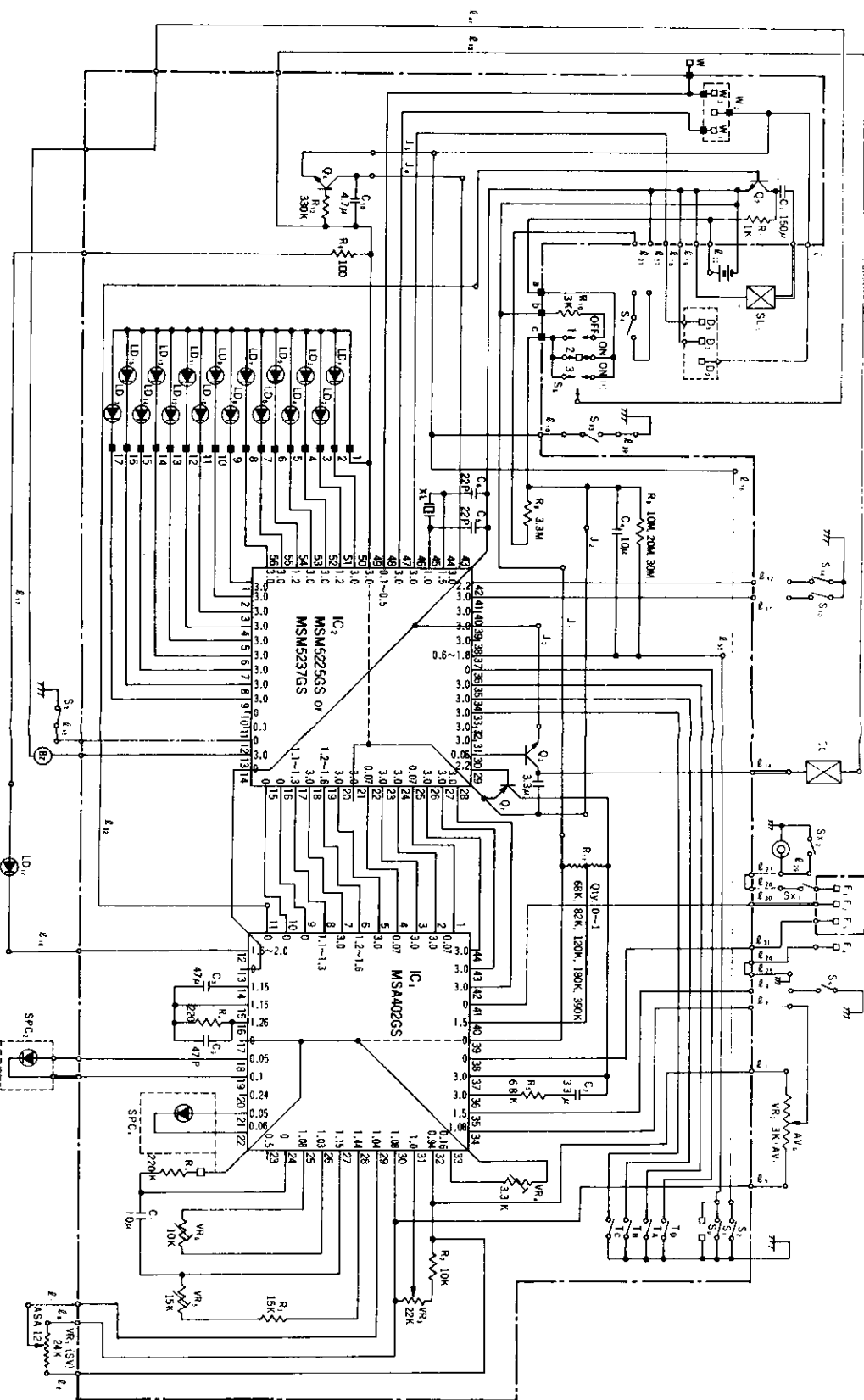
Operation of switches

Mark	Name	Function	Condition of operation
S ₀	Touch switch	Setting metering and calculating circuit to ON, lighting finder LEDs.	ON by touching operating button.
S ₁	Metering switch	The same as S ₀ .	ON by depressing operating button.
S ₂	Release switch	Starting of circuits operating.	
S ₃	Trigger switch	Counting start of exposure time with OFF.	OFF right after shutter operation start.
S ₄	Reset switch	<ul style="list-style-type: none"> • Prevention against error during winding. • Reset of circuit. • Control of motor drive. 	OFF with winding completed. ON with preset mech. returning after 2nd curtain travelled.
S ₅	Main switch	<ul style="list-style-type: none"> • ON/OFF of circuit power source and ON))) • Power supplying. 	Operating of main switch lever.
S ₆	PV switch	Changing of full aperture or stop down metering.	ON with PV button depressed.
S ₁₀	Self-timer switch	Setting circuit components to self-timer mode.	ON by pulling up self-timer lever.
S ₁₃	Remote control switch	The same as S ₂ .	
S ₁₄	AE lock switch	<ul style="list-style-type: none"> • Holding of exposure value and indication. • Slow synchronization using exclusive flash. 	ON by pushing the self-timer lever down.
Sx ₁	Electro-shock guard switch	Prevention against electro-shock.	ON with flash mounted onto hot shoe.
Sx ₂	X contact	Firing of flash.	ON with 1st curtain travelled completely. OFF with 2nd curtain travelled completely.
T _A / T _D	TV switch	<ul style="list-style-type: none"> • Circuit changing of A, M, B, mode. • LED light changing of A, M, B mode. 	By turning shutter speed dial.



X-500
X-570

[illegible]



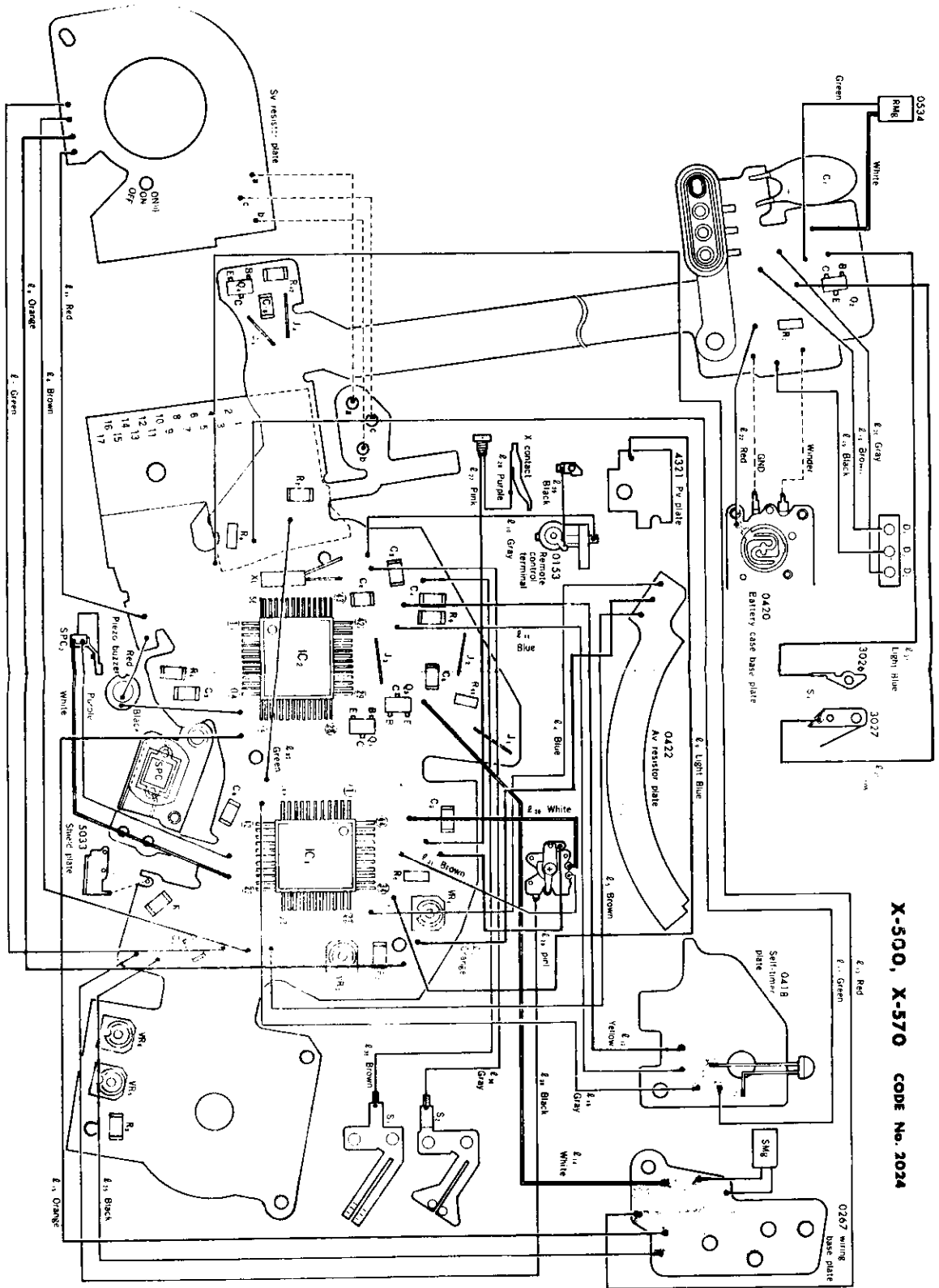
For welfare, we follow according to "Jones" in case of and mean, respectively

■ Lead wire

Symbol	Part No.	Type.
l_3	9391-0507-03	$\phi 0.05/7$ wires $l=70$
l_4	9391-0507-06	$\phi 0.05/7$ wires $l=70$
l_5	9391-0507-01	$\phi 0.05/7$ wires $l=75$
l_6	9391-0507-01	$\phi 0.05/7$ wires $l=85$
l_7	9391-0507-05	$\phi 0.05/7$ wires $l=90$
l_8	9391-0507-03	$\phi 0.05/7$ wires $l=95$
l_9	9391-0807-11	$\phi 0.08/7$ wires $l=135$
l_{10}	9391-0807-08	$\phi 0.08/7$ wires $l=40$
l_{11}	9391-0807-06	$\phi 0.08/7$ wires $l=95$
l_{12}	9391-0807-04	$\phi 0.08/7$ wires $l=95$
l_{13}	9391-0807-02	$\phi 0.08/7$ wires $l=105$
l_{14}	9391-0807-09	$\phi 0.08/7$ wires $l=75$
l_{15}	9391-0807-03	$\phi 0.08/7$ wires $l=105$
l_{16}	9391-0807-08	$\phi 0.08/7$ wires $l=65$
l_{17}	9391-0807-05	$\phi 0.08/7$ wires $l=115$
l_{18}	9391-0807-01	$\phi 0.08/7$ wires $l=40$
l_{19}	9391-0807-00	$\phi 0.08/7$ wires $l=35$
l_{20}	9391-0807-08	$\phi 0.08/7$ wires $l=55$
l_{21}	9391-0807-04	$\phi 0.08/7$ wires $l=160$
l_{22}	9391-0807-02	$\phi 0.08/7$ wires $l=25$
l_{23}	9391-0807-00	$\phi 0.08/7$ wires $l=50$
l_{24}	9391-0807-00	$\phi 0.08/7$ wires $l=80$
l_{27}	9391-0807-10	$\phi 0.08/7$ wires $l=80$
l_{28}	9391-0807-10	$\phi 0.08/7$ wires $l=50$
l_{29}	9391-0807-07	$\phi 0.08/7$ wires $l=65$
l_{30}	9391-0807-09	$\phi 0.08/7$ wires $l=65$
l_{31}	9391-0807-01	$\phi 0.08/7$ wires $l=70$
l_{32}	9391-0807-05	$\phi 0.08/7$ wires $l=35$
l_{33}	9391-0807-01	$\phi 0.08/7$ wires $l=70$
l_{34}	9391-0807-08	$\phi 0.08/7$ wires $l=70$
l_{37}	9391-0807-11	$\phi 0.08/7$ wires $l=170$
l_{39}	9391-0507-00	$\phi 0.05/7$ wires $l=25$
l_{41}	9391-0507-02	$\phi 0.05/7$ wires $l=40$

■ Electric parts

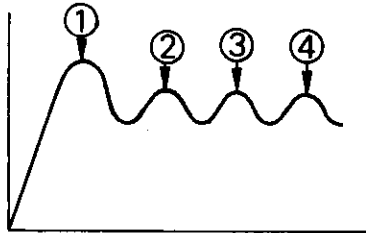

Symbol	Part No.	Type.
Q_1	9363-1032-01	2SA1162 SO, SY, SG
Q_2	9362-1261-02	2SD1048 X7, X8
Q_3, Q_4	9362-1032-01	2SC2712 LO, LY, LG, LL
XL	9373-4162-01	C-002R
SPC ₁	2024-0491-01	
R_1, R_1	9432-2246-62	1/8W 220K Ω
R_2	9432-1036-62	1/8W 10K Ω
R_3	9432-1536-62	1/8W 15K Ω
R_4	9422-6826-62	1/8W 6.8K Ω
R_5	9422-1016-62	1/8W 100 Ω
R_7	9422-1026-62	1/8W 1K Ω
R_8	9432-3357-61	1/8W 3.3M Ω
R_9	9432-1068-61	1/8W 10M Ω
	9432-2068-61	1/8W 20M Ω
	9432-3068-61	1/8W 30M Ω
R_{11}	9422-6836-62	1/8W 68K Ω
	9422-8236-62	1/8W 82K Ω
	9422-1246-62	1/8W 120K Ω
	9422-1846-62	1/8W 180K Ω
	9422-3946-62	1/8W 390K Ω
R_{12}	9431-3348-61	1/16W 330K Ω
VR ₃	9472-2239-66	EVM-04G 22K Ω
VR ₄	9472-3329-63	EVM-14G 3.3K Ω
VR ₅	9472-1539-63	EVM-14G 15K Ω
VR ₆	9472-1039-63	EVM-14G 10K Ω
C_1	9565-1034-64	0.01 μ F/50V
C_2	9564-3324-61	3300PF/25V
C_3	9564-4734-64	0.047 μ F/25V
C_4	9564-1034-61	0.01 μ F/25V
C_5, C_6	9564-2204-65	22PF/25V
C_7	9531-1575-61	150 μ F/3.15V
C_8	9565-3338-65	0.033 μ F/50V
C_9	9565-4705-62	47PF/50V
C_{10}	9565-4738-65	0.047 μ F/50V



X-500, X-570 CODE No. 2024

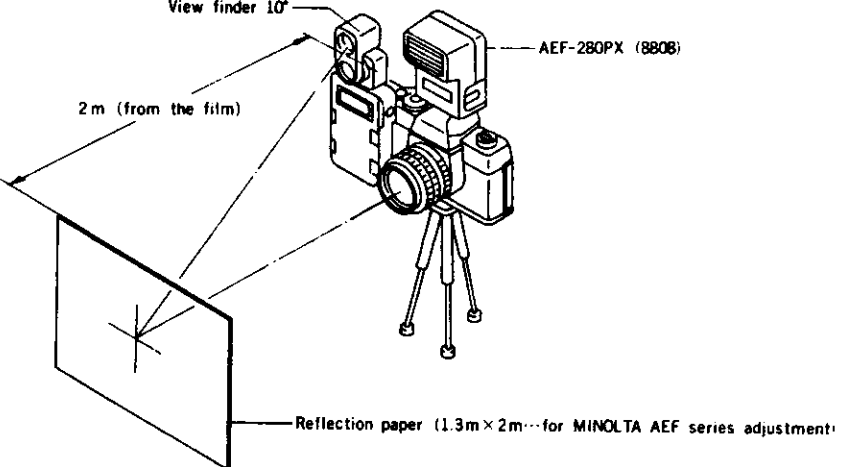
Inspection Standard

1. This standard specifies uniform performance levels for servicing in order to guarantee our product's quality to customers. Each item is detailed so that you can follow this standard when you receive inquiries from users or are asked for checks.
2. When delivery or acceptance inspections are required, do not directly apply this standard to the performance measurements, but refer to the corresponding standard (manual).
3. Some users, because of their taste or special purposes, may require adjustment of this standard. In this case, perform the adjustment according to the user's request whenever possible.

Check Item	Checkpoint	Description
Main switch		Operation.....Squeak, roughness, click feeling.
		BeeperIn "ON)))" position, a beeper should sound when touch SW. is turned ON or when AE is locked at shutter speed is slower than "1/30" in A mode.Beeping should be free of irregular sound.
Winding	Winding lever	Operation.....There shall be no uneven action, roughness, sticking or contact, etc.
		PlayShould be less than 0.7 mm at the tip of the lever.
	Spool	Operation.....An even and smooth idle rotation shall enable the film to rewind securely.
		Spool torque...200 to 300 g (②, ③, ④ as shown in the figure below) 
	Sprocket	Operation.....Slip, no-load rotation with the rewind button depressed.
Rewinding	Rewind button	Operation.....Lock, unlock (To be reset at the first half of rewinding), touch or contact.
		Lock position...Should be above, the bottom cover. Unlock position...Should be below the bottom cover surface.
	Rewind handle	Operation.....There shall be no uneven heavy movement, touch or contact, etc.Effective spring action.
Film counter	Counter dial	FeedThe counter dial shall be 1 when the rear lid is closed and the film is wound twice. There shall be no contact, skip, etc.
		ReturnThere shall be no contact, etc., and the counter dial shall return to S. Index deviation...Should be within the range as illustrated below: 

Check Item	Checkpoint	Description																															
Self-timer	Lever	<ul style="list-style-type: none">● Operation.....There shall be no roughness, squeak, etc. Click feeling.● Self-timer SW. should not be turned ON by snapback of AE lock releasing.																															
	Timer function	<ul style="list-style-type: none">● Setting the lever to "OFF" after starting shall stop operation.● With main SW. in ON position, the pulsating beeper should sound simultaneously with ON/OFF cycle of self-timer LED.● ON/OFF cycle of the lamp (LED) and beeper shall satisfy the following time chart: <div><p style="text-align: center;">Start2 Hz8 HzContinuousRelease</p></div>																															
Finder	View	Inclination of image, coincidence, fading on one side.																															
	Diaphragm display	<p>Diaphragm display shall be within the frame, and the adjacent character shall not be in sight at F5.6.</p> <p>Display frame position...As illustrated.</p> <div><p>Height... $0 < a \leq b$ Right & Left...Within micro prism width</p></div>																															
	LED display	<ul style="list-style-type: none">● All LEDs should be clear, be free of dust, shade.● LED indication (ON/OFF) should be as follows corresponding to each mode of shutter speed dial. <table><tr><th colspan="2">SS DIAL</th><th>A</th><th>1/1000~ 1</th><th>B</th></tr><tr><td rowspan="2">No electroflash</td><td>Mode indicator</td><td>"A" ON ("A" blinking when cells near exhaustion)</td><td>"M" ON ("M" blinking when cells near exhaustion)</td><td>"M" ON ("M" blinking when cells near exhaustion)</td></tr><tr><td>Metering indicator</td><td>Proper shutter speed indicator ON</td><td>Proper shutter speed indicator ON Selected shutter speed indicator blinking</td><td>B indicator "*" ON</td></tr><tr><td rowspan="2">With Auto Electroflash 280PX (8808)</td><td>Mode indicator</td><td>"A" ON ("A" blinking when cells near exhaustion)</td><td>"M" ON ("M" blinking when cells near exhaustion)</td><td>"M" ON ("M" blinking when cells near exhaustion)</td></tr><tr><td>Metering indicator</td><td>"1/60" blinking ("1/60"- "▼" blinking with AE locked)</td><td>"1/60" blinking (AE lock impossible)</td><td>B indicator "*" blinking</td></tr><tr><td rowspan="2">With Auto Electroflash X-series</td><td>Mode indicator</td><td>No indicated ("A" blinking when cells near exhaustion)</td><td>No indicated ("M" blinking when cells near exhaustion)</td><td>No indicated</td></tr><tr><td>Metering indicator</td><td>"1/60" blinking ("1/60"- "▼" blinking with AE locked)</td><td>"1/60" blinking (AE lock impossible)</td><td>B indicator "*" blinking</td></tr></table> <p>Others.....</p> <ul style="list-style-type: none">● The indication should light up for 15 seconds after the metering switch (S_2 or S_1) is OFF. The indication should remain ON for 15 seconds after shutter release.● Immediately the self-timer operates and shutter is released, the indication should go off.● 3 or more metered shutter speed LEDs should not light up.● Over-range LED (▲) and under-range LED (▼) should go on and off independently. (Should not light up simultaneously with "1000" or "1" LED)● In A mode, shutter speed should be within 1-4 sec. when under-range LED (▼) is ON. Should be slower than 4 sec. when (▼) is blinking.	SS DIAL		A	1/1000~ 1	B	No electroflash	Mode indicator	"A" ON ("A" blinking when cells near exhaustion)	"M" ON ("M" blinking when cells near exhaustion)	"M" ON ("M" blinking when cells near exhaustion)	Metering indicator	Proper shutter speed indicator ON	Proper shutter speed indicator ON Selected shutter speed indicator blinking	B indicator "*" ON	With Auto Electroflash 280PX (8808)	Mode indicator	"A" ON ("A" blinking when cells near exhaustion)	"M" ON ("M" blinking when cells near exhaustion)	"M" ON ("M" blinking when cells near exhaustion)	Metering indicator	"1/60" blinking ("1/60"- "▼" blinking with AE locked)	"1/60" blinking (AE lock impossible)	B indicator "*" blinking	With Auto Electroflash X-series	Mode indicator	No indicated ("A" blinking when cells near exhaustion)	No indicated ("M" blinking when cells near exhaustion)	No indicated	Metering indicator	"1/60" blinking ("1/60"- "▼" blinking with AE locked)	"1/60" blinking (AE lock impossible)
SS DIAL		A	1/1000~ 1	B																													
No electroflash	Mode indicator	"A" ON ("A" blinking when cells near exhaustion)	"M" ON ("M" blinking when cells near exhaustion)	"M" ON ("M" blinking when cells near exhaustion)																													
	Metering indicator	Proper shutter speed indicator ON	Proper shutter speed indicator ON Selected shutter speed indicator blinking	B indicator "*" ON																													
With Auto Electroflash 280PX (8808)	Mode indicator	"A" ON ("A" blinking when cells near exhaustion)	"M" ON ("M" blinking when cells near exhaustion)	"M" ON ("M" blinking when cells near exhaustion)																													
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Check Item	Checkpoint	Description																						
Auto exposure	ASA dial	Operation.....There shall be no touch or contact, roughness, etc., and the dial shall rotate smoothly, and shall engage with the lock groove securely.																						
		Dial deviation...Should be within the range shown below including play. <div style="text-align: center;"> </div>																						
<p>[1] Auto exposure and tolerance of LED display</p> <p>1. LED display at M mode...Conforms to LED display at A mode as shown in Table 1 below:</p> <p>2. EE level and LED display at A mode.</p> <p>Table-1 (Lens : Master lens for S-auto, ASA : 100)</p> <table border="1"> <thead> <tr> <th>Luminance</th><th>Diaphragm</th><th>Tolerance of LED lighting</th><th>Tolerance of EE level</th><th>Variation</th></tr> </thead> <tbody> <tr> <td rowspan="3">EV 5</td><td rowspan="3">F 4</td><td>4 </td><td rowspan="9">0 ± 0.8EV</td><td rowspan="9">0.4EV</td></tr> <tr> <td>2 </td></tr> <tr> <td>1 </td></tr> <tr> <td rowspan="3">EV 11</td><td rowspan="3">F 8</td><td>60 </td></tr> <tr> <td>30 </td></tr> <tr> <td>15 </td></tr> <tr> <td rowspan="3">EV 14</td><td rowspan="3">F 5.6</td><td>1000 </td></tr> <tr> <td>500 </td></tr> <tr> <td>250 </td></tr> </tbody> </table>			Luminance	Diaphragm	Tolerance of LED lighting	Tolerance of EE level	Variation	EV 5	F 4	4	0 ± 0.8EV	0.4EV	2	1	EV 11	F 8	60	30	15	EV 14	F 5.6	1000	500	250
Luminance	Diaphragm	Tolerance of LED lighting	Tolerance of EE level	Variation																				
EV 5	F 4	4	0 ± 0.8EV	0.4EV																				
		2																						
		1																						
EV 11	F 8	60																						
		30																						
		15																						
EV 14	F 5.6	1000																						
		500																						
		250																						
<p>[2] Electric flash dimmer performance</p> <p>1. Check by a luminance box (When the luminance box is other than L-2101, check in the following No. 2 methods.)</p> <p>● Standard...The time counter display shall be within the range of 0.36 to 1.1 ms. (±0.8EV for 0.63ms reference value)</p> <p>● Checking procedures...Set up a camera and measuring instruments as illustrated below to observe the time counter display when the shutter is released.</p> <div style="text-align: center;"> </div> <p>● Camera</p> <ul style="list-style-type: none"> : Installation master lens for A-auto : Standard reflector (2017-0002-75) installation Shutter dial : A ASA : 100 <p>● Time counter (TC-1)</p> <ul style="list-style-type: none"> TRIG. slope A-CH : (-) B-CH : (+) TRIG. level A-CH : + 2 B-CH : + 2 																								

Check Item	Checkpoint	Description
Auto exposure		2. Checking by strobo tester (Model ST-III) ● Standard ...Strobo tester display shall be within the range of $F 5.6 \pm 0.8 \text{ EV}$. ● Checking procedures ...Set up a camera and measuring instruments as illustrated below and release the shutter 30 seconds after the pilot lamp of the electric flash lights up to observe the display of the electric flash.
		 <p>View finder 10"</p> <p>2m (from the film)</p> <p>AEF-280PX (8808)</p> <p>Reflection paper (1.3m x 2m...for MINOLTA AEF series adjustment)</p> <p>● Camera : Installation master lens for A-auto : Standard reflector (2017-0002-75) installation Shutter dial : A ASA : 100</p> <p>● Strobo tester MODE : NON. C</p> <p>● Electric flash Hi-Low changing SW : Hi</p>
		[3] High/Low speed limit 1. High-speed limit ...The exposure time should be within $0.69 \sim 1.38 \text{ ms}$ with over-range LED ON in A mode. (Check with the shutter tester in A mode.) 2. Low-speed limit ...The exposure time should be within 4 seconds with under-range LED ON in A mode. (Check by interrupting light to the light receiver in A mode.)
		[4] AE lock ● Depressing AE lock should activate the camera's meter and viewfinder LED display. ● AE lock should not operate in M mode. ● Exposure change with continuous shooting (A mode) Standard...Shutter speed variation should be within $\pm 0.3 \text{ EV}$ with AE locked. (For shutter speed faster than 1/500, variation should be within $\pm 0.5 \text{ EV}$.)

Check Item	Checkpoint	Description
Focus	Mirror	Angle $45^{\circ} \pm 15'$
		Operation.....There shall be no play, two-step movement, improper timing, bounds within the image plane, etc.
		Inclination ...Shall be within 0.4 mm for the light shield plate in the up position.
	Body back (Pressure plate back)	$43.72^{+0.01}_{-0.02}$ mm (from the pressure plate margin to the lens mounting surface)
	Finder back	43.565 ± 0.025 mm
Others	MC levers	Operation.....There shall exist no roughness, contact or touch, abnormal sound, etc.
	Lens removal and installation	Check removal and installation torque (light or heavy), lock, unlock, play.
	Pre-view button	<ul style="list-style-type: none"> ● Operation.....There shall exist no roughness, contact or touch, abnormal sound, etc. ● Winding up/shutter releasing operation should be normal with the button depressed. ● Depressing the button should change the metering from full aperture to stop-down metering.
	Back cover	<ul style="list-style-type: none"> ● Opening/closing...Back cover shall float spontaneously when the rewind knob is pulled up. There shall be no remarkable play when back cover is closed. ● Attaching/detaching...Should be easy with its release pin operating smoothly.
	Pressure plate	There shall be no distortion, protrusion, concave, foreign matter attachments, etc.
	Battery chamber	Contact.....There shall be no abrasion, corrosion, stains, etc.
	Compatibility with accessories	<ul style="list-style-type: none"> ● Interchangeability with Multi-Function Back (8744) ...With 8744 installed, continuous shooting and camera control functions by 8744 shall be performed. ● Interchangeability with Motor Drive I (8740) and Auto Winder G (8731-200) ...With 8740 and 8743 installed, check the functions.
Voltage regulations, etc.		<ul style="list-style-type: none"> ● Battery consumption with LEDs ON (4 LEDs lighting ON in M mode)..... 9.5 mA or less (Voltage 2.8 V) ● Leak current at main SW. ON or ON))).....$10 \mu A$ or less (Voltage 2.8 V) ● Leak current at main SW. OFF$2 \mu A$ or less (Voltage 2.8 V)

X-300 [2025-100]

X-370 [2025-300]

.....For U.S.A. & Canada

TYPE OF CAMERA

Electrically controlled 35mm focal plane shutter
SLR AE camera
Photography system : Aperture priority AE and
manual photography
Standard lens : MD50mm F1.2, MD50mm F1.4,
MD50mm F1.7, MD50mm F2
Lens mount : Minolta SLR bayonet mount
Film used : J135 rolled film
Size of image field : 24mm×36mm

SHUTTER

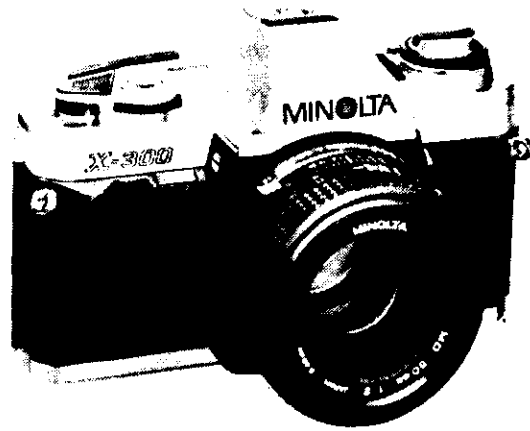
Electrically controlled focal plane shutter
(Traveling horizontally)
Shutter speed : Auto...4 sec. to 1/1000 sec.
Manual...1, 1/2, 1/4, 1/8, 1/15,
1/30, 1/60, 1/125, 1/250,
1/500, 1/1000 sec. and B
(bulb).
Shutter speed dial : Click stop endless dial
Shutter release : Electromagnetic release, remote
cord, wireless controller IR-1
can be mounted.
Shutter release locks in case of
battery voltage drop.
With main switch at ON.
Self timer : Electronic self-timer starts by
depressing the operating button.
Operation is indicated by camera-
front LED blink.
Shutter release notice is given.
Self-timer operation can be
canceled anytime before release.

EXPOSURE CONTROL

Light metering system : TTL center-weighted
average metering.
Detector element : 1 Silicon photocell
Auto exposure interlock range
: EV 1-18 (ASA/ISO 100 f/1.4 lens)
Film speed scale : ASA/ISO 12-3200 (locked every
1/3 step)
AE lock : Only for A mode.
: Operation by pushing self-timer
lever down.
Metering switch : By touch switch or depressing
of operating button slightly.
Memorizing of metering and
finder LED indication for 15
sec. after the switch OFF.

VIEW FINDER

Type : SLR pentaprism type
Focusing screen : Center...Split-image and micro-
prism
Periphery...Acute Matte
Viewfinder showing : 95% of 24mm×36mm film-
frame area
Magnification : 0.9× (using 50mm lens at ∞ set-
ting)
Dioptric power : -1 diop.
Finder indication :
: Mode indication in use (A, M)
: Shutter speed scale with LED
indication
: Slow shutter speed indication for
1-4 sec (▽)
: Over-/under- range LED indication
blinking at 4 Hz (△/▽)
: B-setting indicator (*)



: Setting shutter speed indicator
(Shutter speed LED blinking at
4 Hz)
: Flash-ready signal (LED next to
"60" blinking at 2 Hz)
: Battery check (by mode indication:
Indicator ON when batteries are
serviceable; blinking when near
exhaustion; no LEDs light when
exhausted)
Mirror : Slide-up quick return

FLASH SYNC

Sync speed : X contact, electroflash is synch-
ronized at speeds slower than 1/60
sec; flash bulb is at speeds slower
than 1/15 sec.
Hot shoe : Direct contact, sync auto control
contact

FILM WINDING, REWINDING

Film winding : By lever. Winding at an angle of
130° (preliminary angle: 30°)
: Auto winding by Motor Drive 1 or
Auto Winder
: With Safe Load Signal
Film counter : Auto resetting calculation. With
Safe Load Signal
Film rewinding : By rewind button and crank
system; auto reset of rewind
button.

BACK COVER

Opening/Closing by pulling up knob, snapping back
the cover.
With grip, memo holder (ISO, DIN, ASA table)

POWER

Two 1.5 V alkaline-manganese (LR44: Eveready A-76
or equiv.) or two 1.55 V silver-oxide (SR44: Eveready
G-13 or equiv.)

OTHERS

Battery holder and Eyepiece cap

SIZE AND WEIGHT

51.5×90×137 mm (2×3-9/19×5-3/8 in.)
470 g (16-9/16 oz.) without power cells

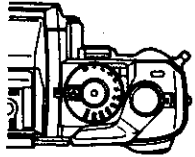
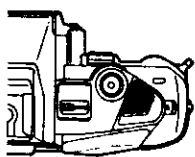
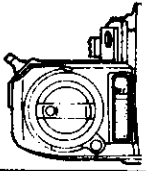
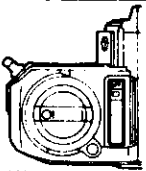
ACCESSORIES

Flash : Auto Electroflash 320X, 200X, 132X,
118X
Winder : Motor Drive 1, Auto Winder G
Remote control : Wireless Controller IR-1 set
Remote Cord S/L
Others : Interchangeable Minolta lenses
and applicable Minolta SLR system
accessories.

Comparison table between 2024 and 2025

I. Appearance

(only differences are described)

Item	2024	2025	Note
<ul style="list-style-type: none"> • Top cover • Mode/shutter speed selector • Film-advance lever 			<ul style="list-style-type: none"> • For 2025, only silver model is available. • Discontinuity of Auto lock mech. of mode/shutter speed selector.
Back grip	Yes	No	
Bottom cover	Same shape		Marking: JAPAN or MARAYSIA
Bayonet lens mount	SUS	BS (Cr. plating)	
Main switch			<ul style="list-style-type: none"> • ON-OFF changeover • No audible piezoelectric warning mark

II. Function

Item	2024	2025	Note
Direct autoflash metering	Yes	No	<ul style="list-style-type: none"> • Discontinuity of direct autoflash metering contact. • Flash fires manually with PX series (360PX can be used as sensor auto). • No flash-distance checker in viewfinder. • Discontinuity of slow-shutter sync function.
Sync terminal	Yes	No	• No electric shock prevention.
Preview button	Yes	No	
Audible piezoelectric warning	Yes	No	<ul style="list-style-type: none"> • No slow-shutter-speed warning. • No self-timer audible beeps.
F-number indication in viewfinder	Yes	No	
Connection with Multi-Function Back	Yes	No	<ul style="list-style-type: none"> • Back cover: fixed type (not detachable) • Discontinuity of contact terminals.

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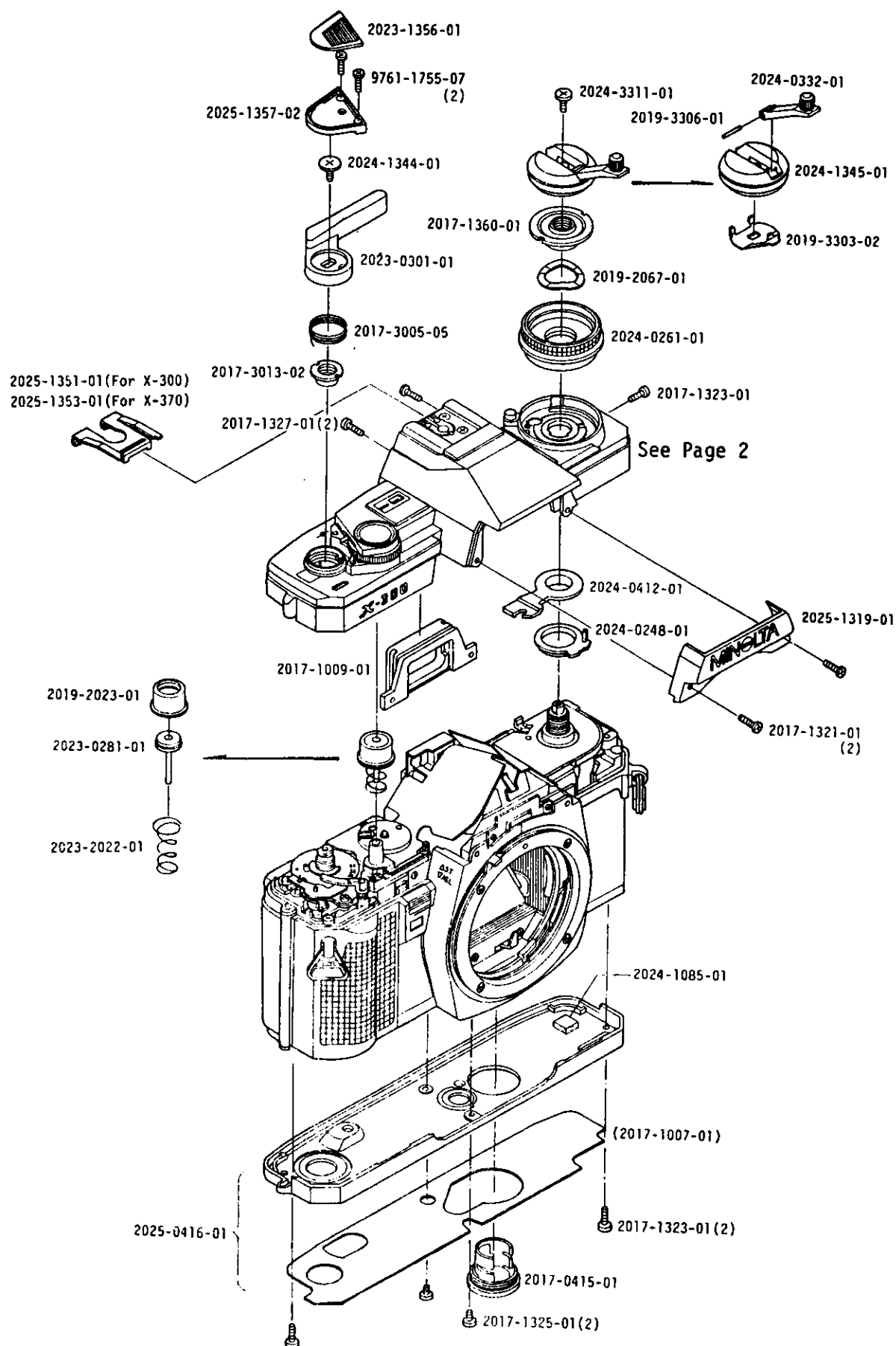
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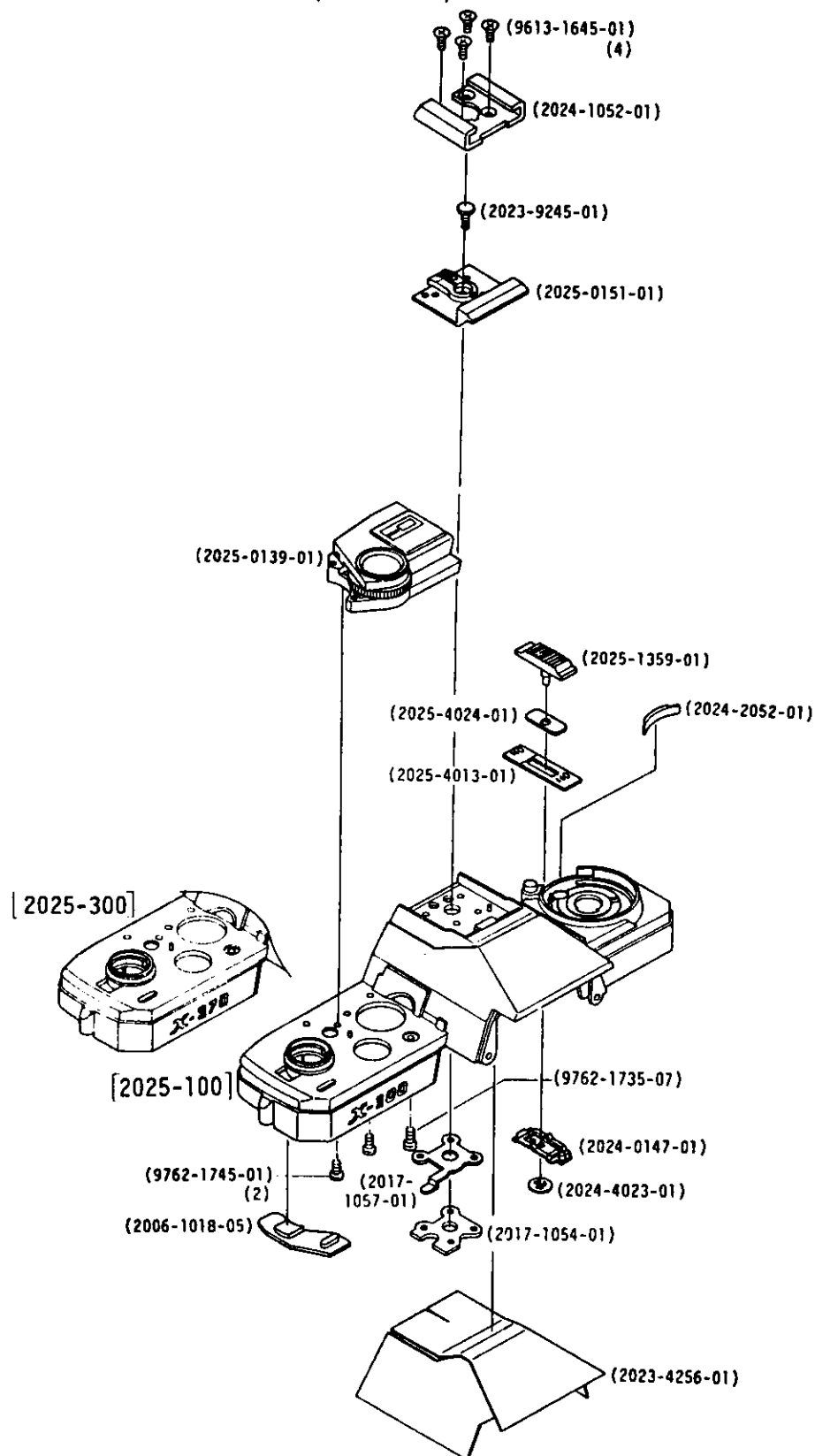
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2024-0248-01	ASA contact holder set	ASAブラシホルダーセット	1
2024-0261-01	ASA operation knob set	ASA操作ノブセット	1
2023-0281-01	Shutter release button axis set	シャッター鉤軸セット	
2023-0301-01	Film advance lever set	巻上レバーセット	1
2024-0332-01	Rewinding handle set	巻戻しハンドルセット	1
2024-0412-01	Main switch guide plate set	メインSMガイド板セット	1
2017-0415-01	Battery holder set	電池ケース蓋セット	1
2025-0416-01	Bottom cover set	下カバーセット	1
(2017-1007-01)	Bottom cover sheet	下カバー保護シート	1
2017-1009-01	Eye-piece frame	接眼枠	1
2024-1085-01	Sponge	コンデンサーガタ止め	1
2025-1319-01	Front top cover	上部正面カバー	1
2017-1321-01	Screw	止めねじ	2
2017-1323-01	Screw	止めねじ	3
2017-1325-01	Screw	止めねじ	2
2017-1327-01	Screw	止めねじ	2
2024-1344-01	Winding lever pressure	巻上レバー押えビス	1
2024-1345-01	Rewinding knob	巻戻しノブ	1
2025-1351-01	Accessory shoe spring (for X-300)	アクセサリーシューバネ	1
2025-1353-01	Accessory shoe spring (for X-370)	アクセサリーシューバネ	1
2023-1356-01	Finger rest leather	フィンガーレスト貼皮	1
2025-1357-02	Finger rest	フィンガーレスト	1
2017-1360-01	ASA dial nut	ASA押えナット	1
2023-2022-01	Shutter release button spring	シャッター鉤SP	1
2019-2023-01	Shutter release button cap	シャッター鉤キャップ	1
2019-2067-01	Pressure spring	ASA操作リング押えばね	1
2017-3005-05	Film advance lever spring	巻上レバー戻しSP	1
2017-3013-02	Top cover nut	上カバー止めナット	1
2019-3303-02	Rewinding handle spring	巻戻しハンドルばね	1
2019-3306-01	Rewinding handle axis	巻戻しハンドル軸	1
2024-3311-01	Rewinding handle screw	巻戻しノブビス	1
9761-1755-07	Tap tite screw	十字穴付タップタイトねじ	2

X - 3 0 0 Code No.2025-100

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Assy Part No.2025-0195-01(For X-300)

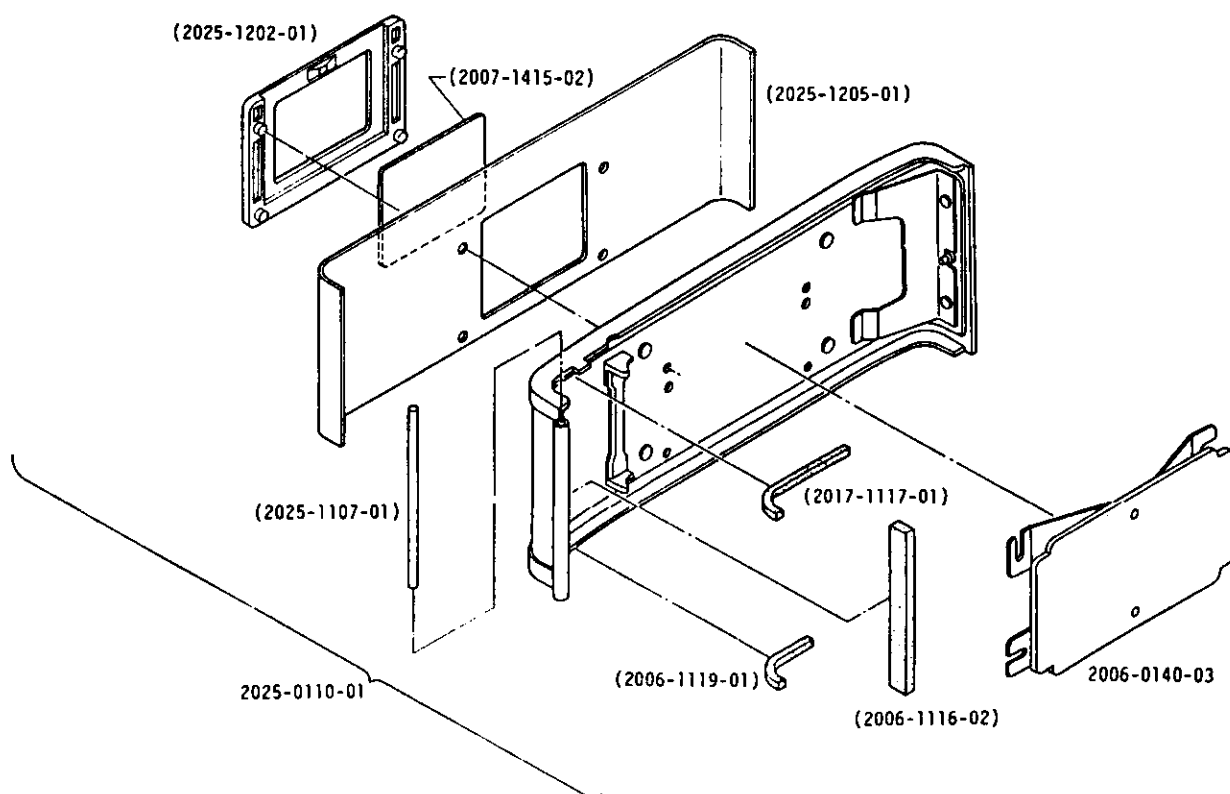
Assy Part No.2025-0197-01(For X-370)



Part No.	Part Name		Qty
2025-0195-01	Top cover set (For X-300)	上カバーセット	1
2025-0197-01	Top cover set (For X-370)	上カバーセット	1
(2025-0139-01)	Shutter dial set	シャッターダイヤルセット	1
(2024-0147-01)	Click plate set	メインSWクリックパネセット	1
(2025-0151-01)	Accessory shoe base set	アクセサリーシュー座セット	1
(2006-1018-05)	Counter window	カウンター窓	1
(2024-1052-01)	Accessory shoe	アクセサリーシュー	1
(2017-1054-01)	Accessory shoe set plate	アクセサリーシュー取付板	1
(2017-1057-01)	Contact-C	コンタクト接片C	1
(2025-1359-01)	Main switch	メインSW切換レバー	1
(2024-2052-01)	ASA window	ASA窓	1
(2025-4013-01)	Main switch plate	メインSW銘板	1
(2024-4023-01)	Snaping ring	メインSW止め輪	1
(2025-4024-01)	Main switch sheet	メインSWレバーシート	1
(2023-4256-01)	Top cover isolation sheet	上カバー絶縁シート	1
(2023-9245-01)	Contact-A	コンタクト接点A	1
(9613-1645-01)	Phillips type screw	十字穴付半丸皿小ねじ	4
(9762-1735-07)	Tap tite screw	十字穴付なべタップタイトねじ	1
(9762-1745-01)	Tap tite screw	十字穴付なべタップタイトねじ	2

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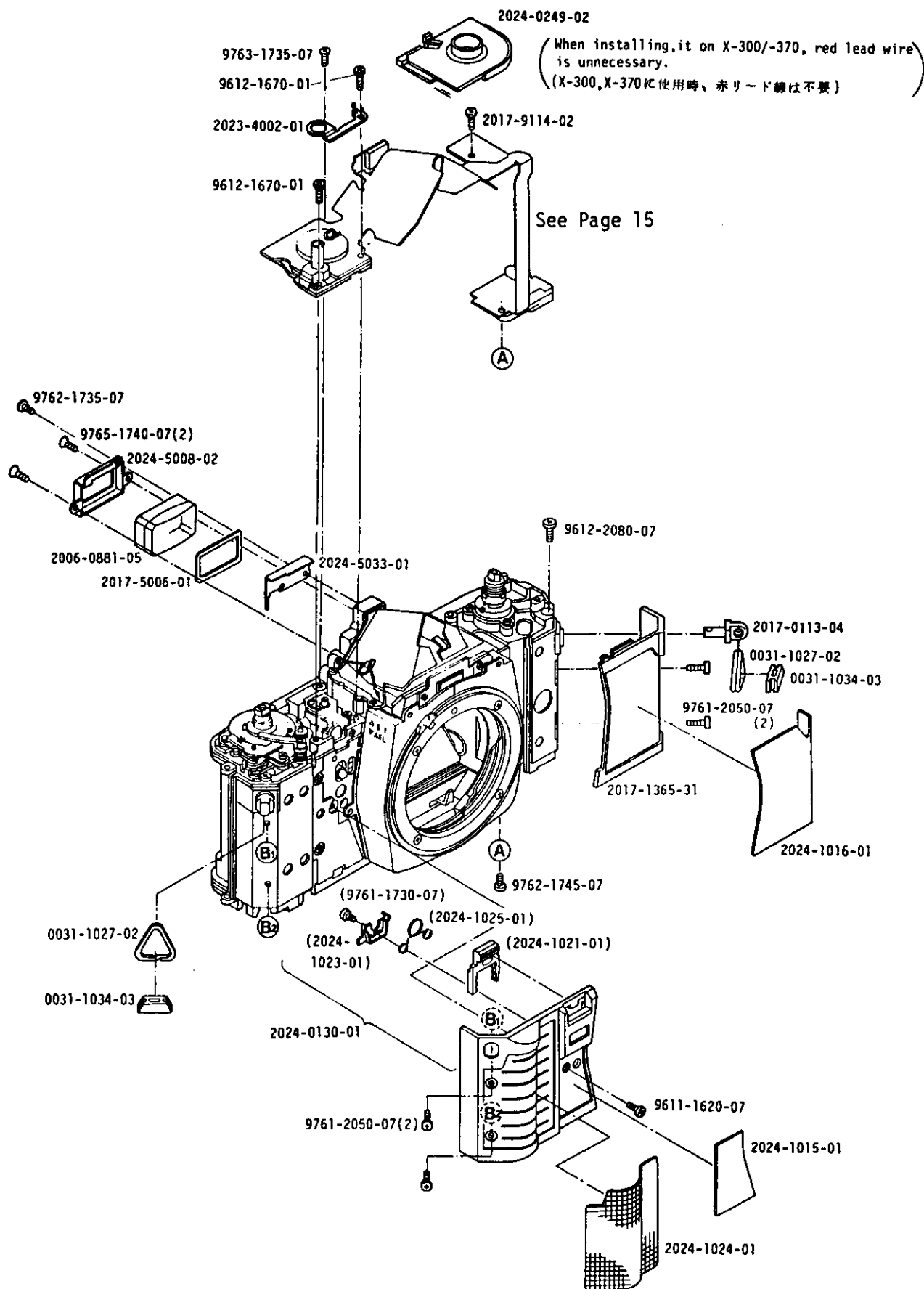
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Part No.	Part Name		Qty
2025-0110-01	Back cover set	裏蓋セット	1
(2025-1107-01)	Hinge axis	ヒンジ軸	1
(2006-1116-02)	Back cover light shield plate	裏蓋遮光片	1
(2017-1117-01)	Back cover light shield plate-C	裏蓋遮光片	1
(2006-1119-01)	Back cover light shield plate-B	裏蓋遮光片	1
(2025-1202-01)	Memo holder	裏蓋ポケット	1
(2025-1205-01)	Back cover leather	裏蓋貼皮	1
(2007-1415-02)	Conversion scale	ASA / ISO換算板	1
2006-0140-03	Pressure plate set	圧着板セット	1

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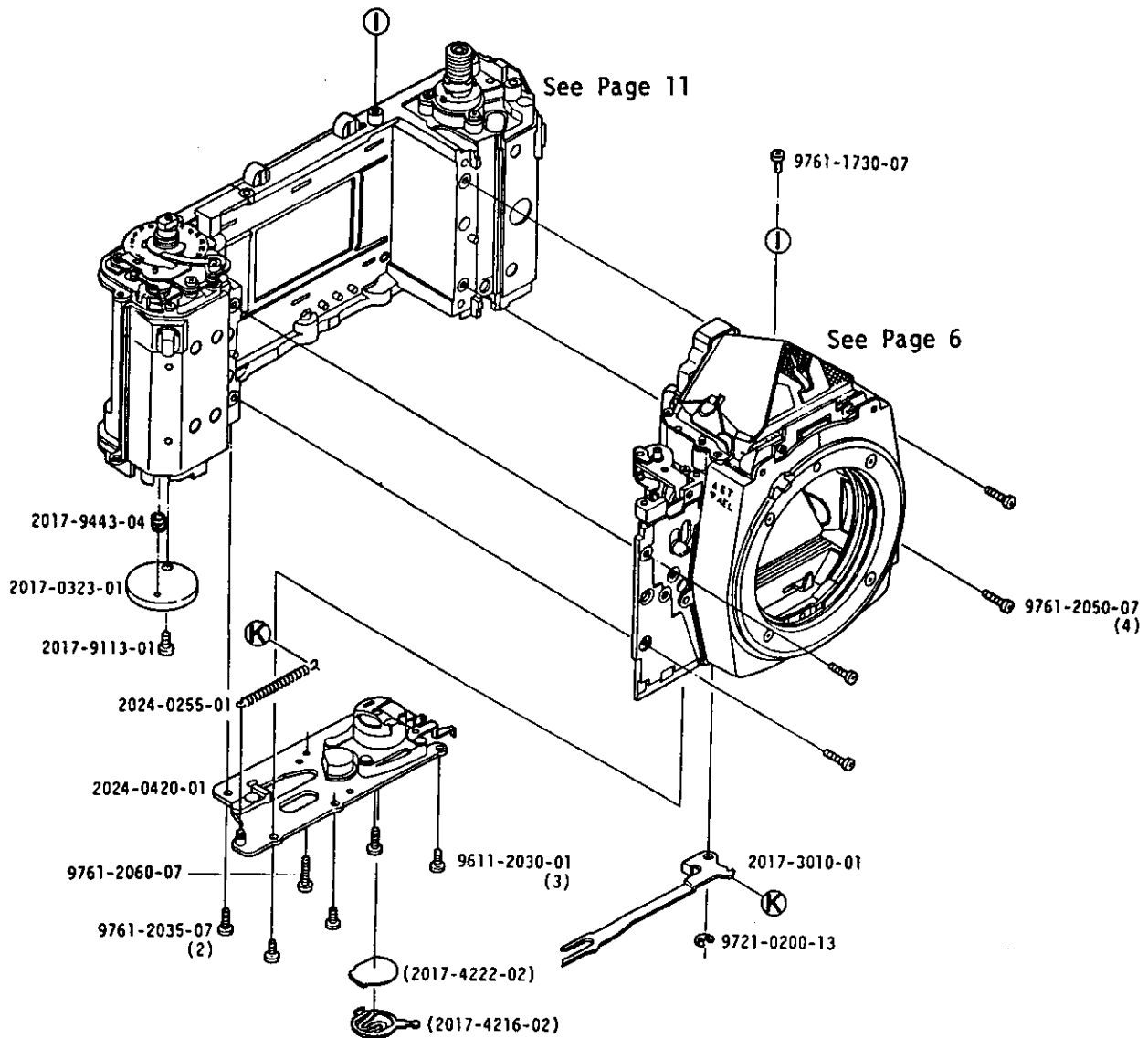
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Part No.	Part Name		Qty
2017-0113-04	Strap hanger set	吊環セット	1
2024-0130-01	Side cover-A set	サイドカバーAセット	1
(2024-1021-01)	Self-timer lever	セルフレバー	1
(2024-1023-01)	Click spring	セルフクリックバネ	1
(2024-1025-01)	Self-timer lever spring	セルフレバーSP	1
(9761-1730-07)	Tap tite screw	十字穴付なべタップタイトねじ	1
2024-0249-02	ASA resistor set	ASA抵抗体セット	1
2006-0881-05	Eye-piece lens set	接眼レンズセット	1
2024-1015-01	Right side leather	右貼皮	1
2024-1016-01	Left side leather	左貼皮	1
2024-1024-01	Grip leather	グリップ貼皮	1
0031-1027-02	Triangle hanger	三角吊環	2
0031-1034-03	Triangle hanger stopper	三角環回り止め	2
2017-1365-31	Side cover-B	サイドカバー	1
2023-4002-01	Earth plate	タッチSWアース板	1
2017-5006-01	Eye-piece light shield plate	接眼レンズ遮光枠	1
2024-5008-02	Eye-piece pressure	接眼レンズ押え	1
2024-5033-01	Shield plate	シールド板	1
2017-9114-02	Screw	止めねじ	1
9611-1620-07	Phillips type screw	十字穴付なべ小ねじ	1
9612-1670-01	Phillips type screw	十字穴付なべ小ねじ	2
9612-2080-07	Phillips type screw	十字穴付なべ小ねじ	1
9761-2050-07	Tap tite screw	十字穴付なべタップタイトねじ	4
9762-1735-07	Tap tite screw	十字穴付なべタップタイトねじ	1
9762-1745-07	Tap tite screw	十字穴付なべタップタイトねじ	1
9763-1735-07	Tap tite screw	十字穴付半丸皿タップタイトねじ	1
9765-1740-07	Tap tite screw	十字穴付皿タップタイトねじ	2

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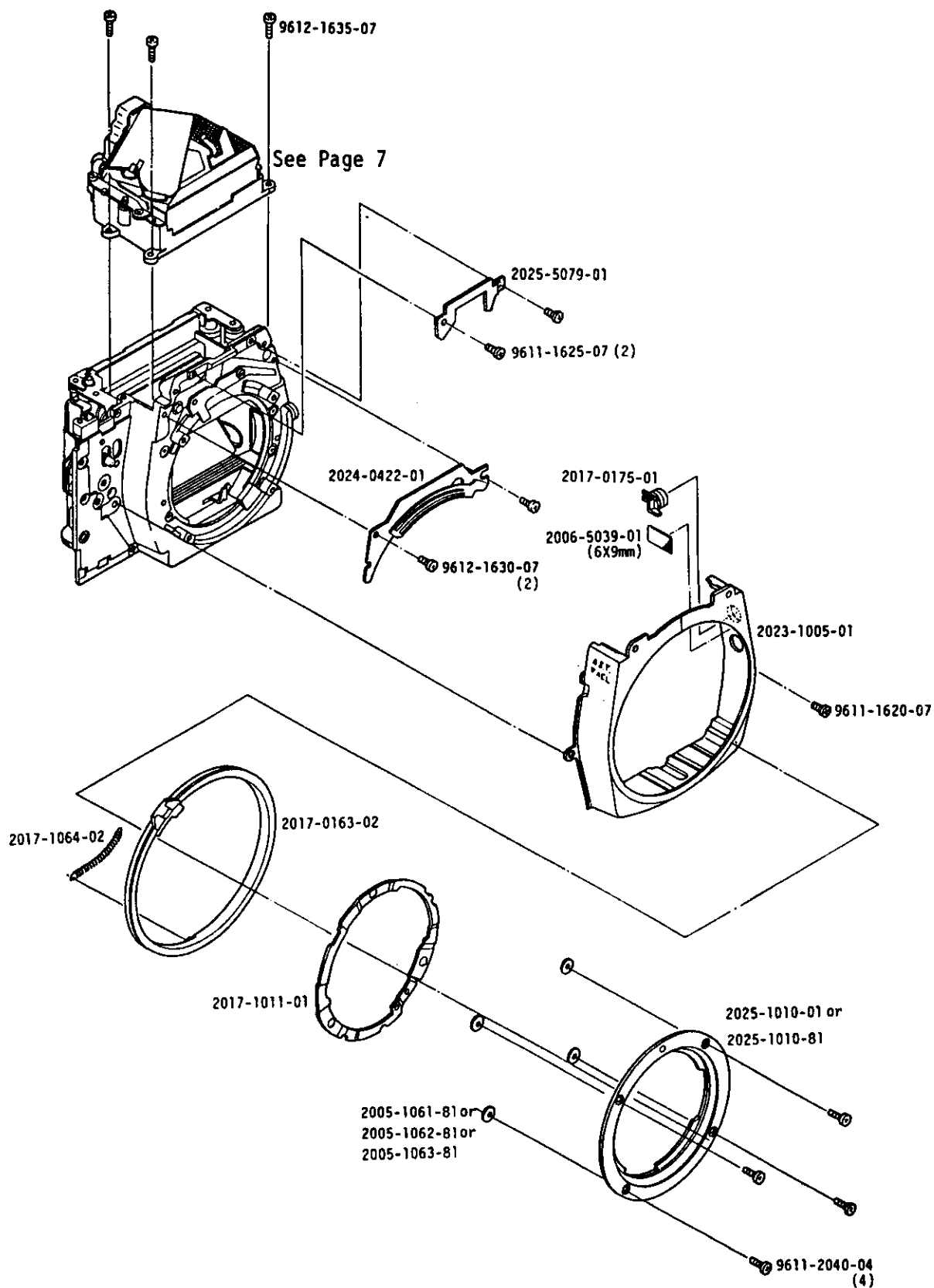
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Part No.	Part Name		Qty
2024-0255-01	MP return sub spring-B set	MP戻し補助SP-Bセット	1
2017-0323-01	Winder coupler set	ワインダーカプラーセット	1
2024-0420-01	Battery case base plate set	電池ケース台板セット	1
(2017-4216-02)	Battery contact (+)	電池接片 (+)	1
(2017-4222-02)	Battery light shield plate	電池ケース遮光板	1
2017-3010-01	Charge lever	チャージレバー	1
2017-9113-01	Screw	止めねじ	1
2017-9443-04	Charge lever roller	チャージレバーローラー	1
9611-2030-01	Phillips type screw	十字穴付なべ小ねじ	3
9721-0200-13	E ring	E リング	1
9761-1730-07	Tap tite screw	十字穴付なべタップタイトねじ	1
9761-2035-07	Tap tite screw	十字穴付なべタップタイトねじ	2
9761-2050-07	Tap tite screw	十字穴付なべタップタイトねじ	4
9761-2060-07	Tap tite screw	十字穴付なべタップタイトねじ	1

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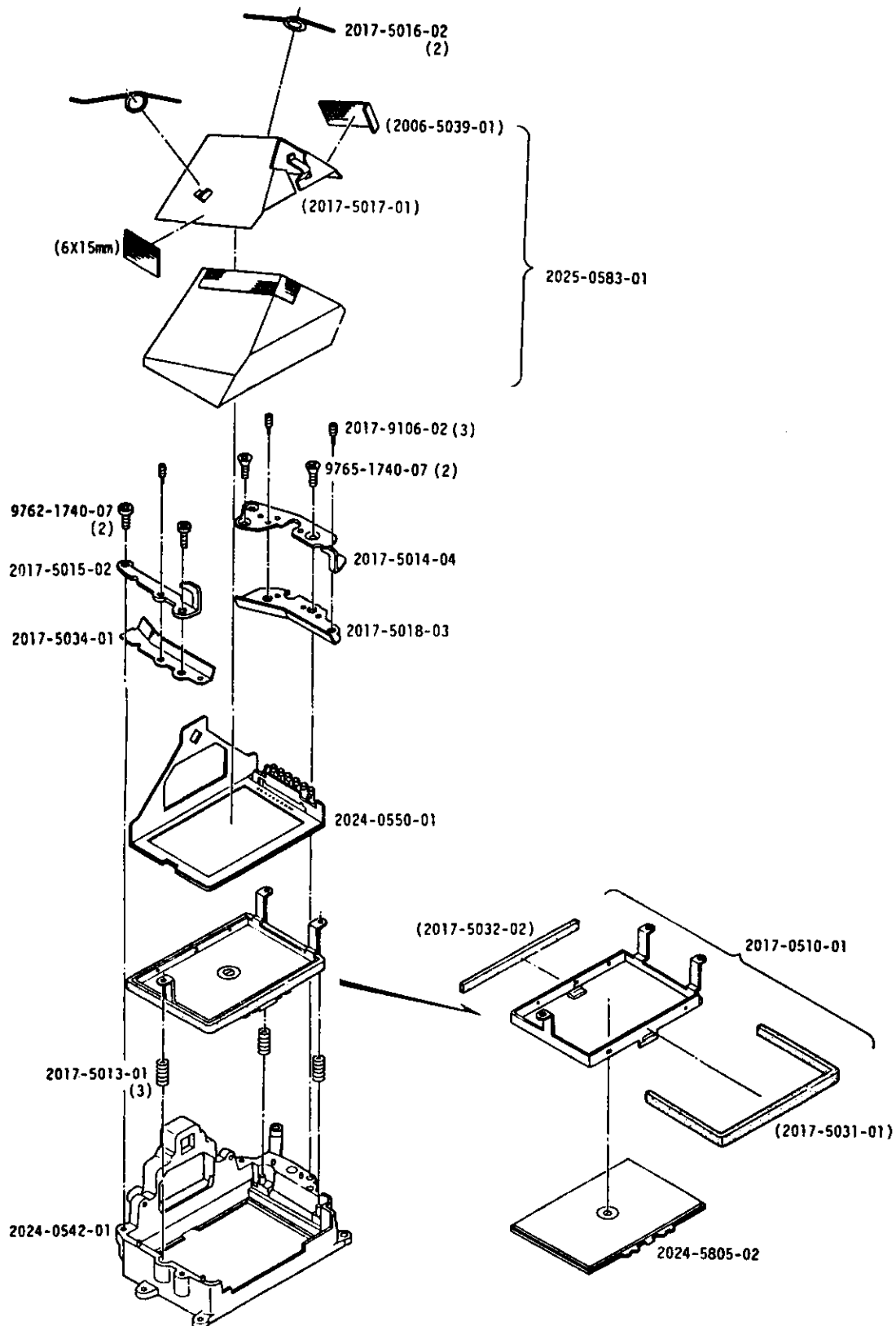
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Part No.	Part Name		Qty
2017-0163-02	Aperture coupling ring set	連結リングセット	1
2017-0175-01	Lens lock button set	レンズロック釦セット	1
2024-0422-01	AV resistor plate set	AV基板セット	1
2023-1005-01	Front cover	前カバー	1
2025-1010-01	Bayonet lens mount	バヨネット座板	} 1
2025-1010-81	Bayonet lens mount (-0.1mm)	バヨネット座板	
2017-1011-01	Bayonet spring	バヨネットSP	1
2005-1061-81	Adjustment washer-A (0.02mm)	調整ワッシャー A	} Some
2005-1062-81	Adjustment washer-B (0.05mm)	調整ワッシャー B	
2005-1063-81	Adjustment washer-C (0.1mm)	調整ワッシャー C	
2017-1064-02	Aperture coupling ring spring	連結リングSP	1
2006-5039-01	Penta. pressure tape (Per roll)	ペンタ押え板テープ	1
2025-5079-01	Front cover plate	前カバー当り板	1
9611-1620-07	Phillips type screw	十字穴付なべ小ねじ	1
9611-1625-07	Phillips type screw	十字穴付なべ小ねじ	2
9611-2040-04	Phillips type screw	十字穴付なべ小ねじ	4
9612-1630-07	Phillips type screw	十字穴付なべ小ねじ	2
9612-1635-07	Phillips type screw	十字穴付なべ小ねじ	3

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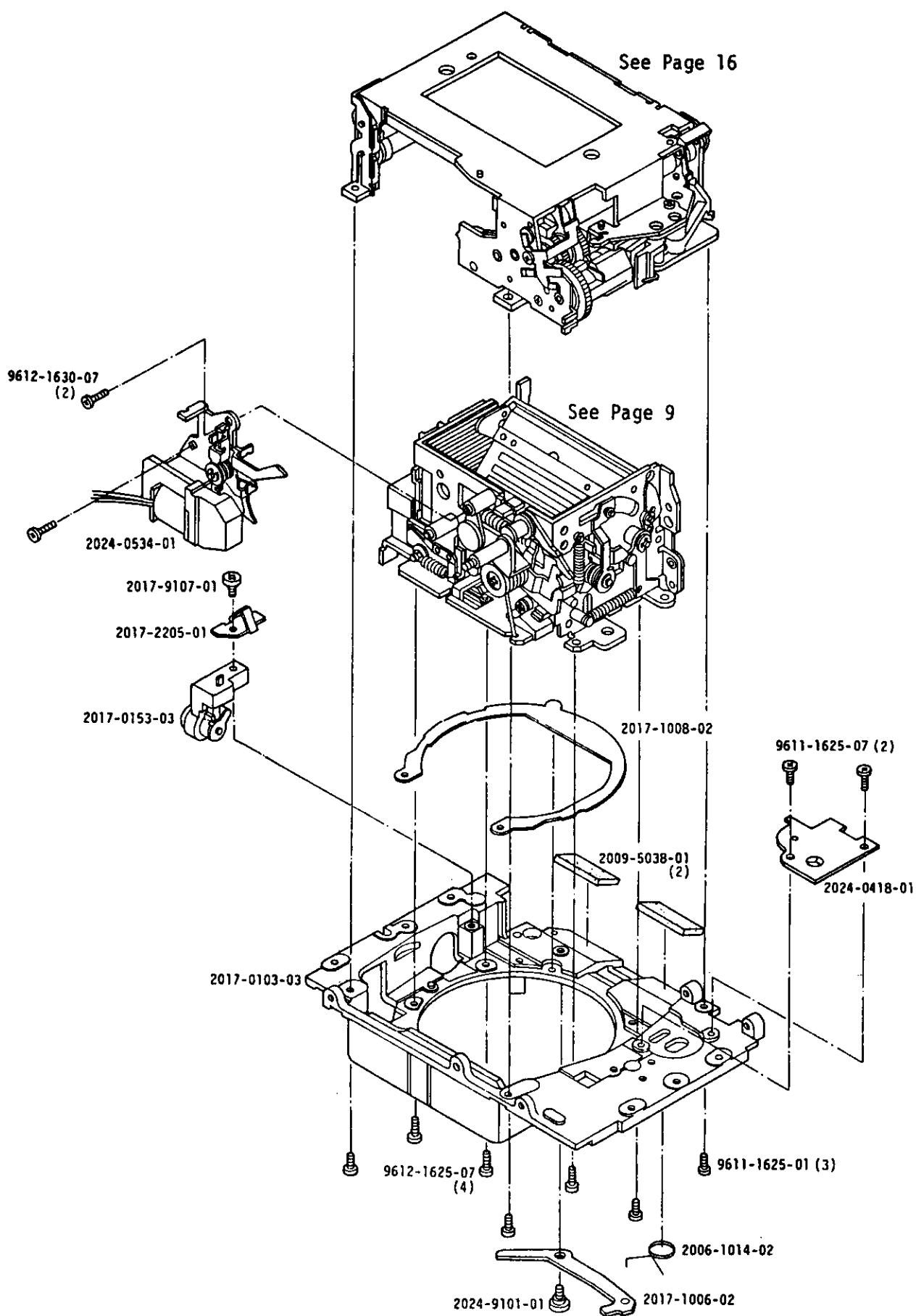
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Part No.	Part Name		Qty
2017-0510-01	Fresnel lens holder set	焦点板ホルダーセット	1
(2017-5031-01)	Packing A	防塵モルトブレンA	1
(2017-5032-02)	Packing B	防塵モルトブレンB	1
2024-0542-01	Penta. holder set	ペンタホルダーセット	1
2024-0550-01	Penta. receiver set	ペンタ受けセット	1
2025-0583-01	Penta. prism set	ペンタプリズムセット	1
(2017-5017-01)	Penta. pressure plate	ペンタ押え板	1
(2006-5039-01)	Penta. pressure tape (Per roll)	ペンタ押え板テープ	2
2017-5013-01	Fresnel lens holder spring	焦点板ホルダーSP	3
2017-5014-04	Penta. pressure (Left side)	ペンタ押え板 (左)	1
2017-5015-02	Penta. pressure (Right side)	ペンタ押え板 (右)	1
2017-5016-02	Penta. pressure spring	ペンタ押えSP	2
2017-5018-03	L.E.D. diffusion plate	LED拡散板	1
2017-5034-01	Dustproof sheet	防塵シート	1
2024-5805-02	Fresnel lens	焦点板	1
2017-9106-02	Screw	焦点板調整ねじ	3
9762-1740-07	Tap tite screw	十字穴付なべタップタイトねじ	2
9765-1740-07	Tap tite screw	十字穴付皿タップタイト ねじ	2

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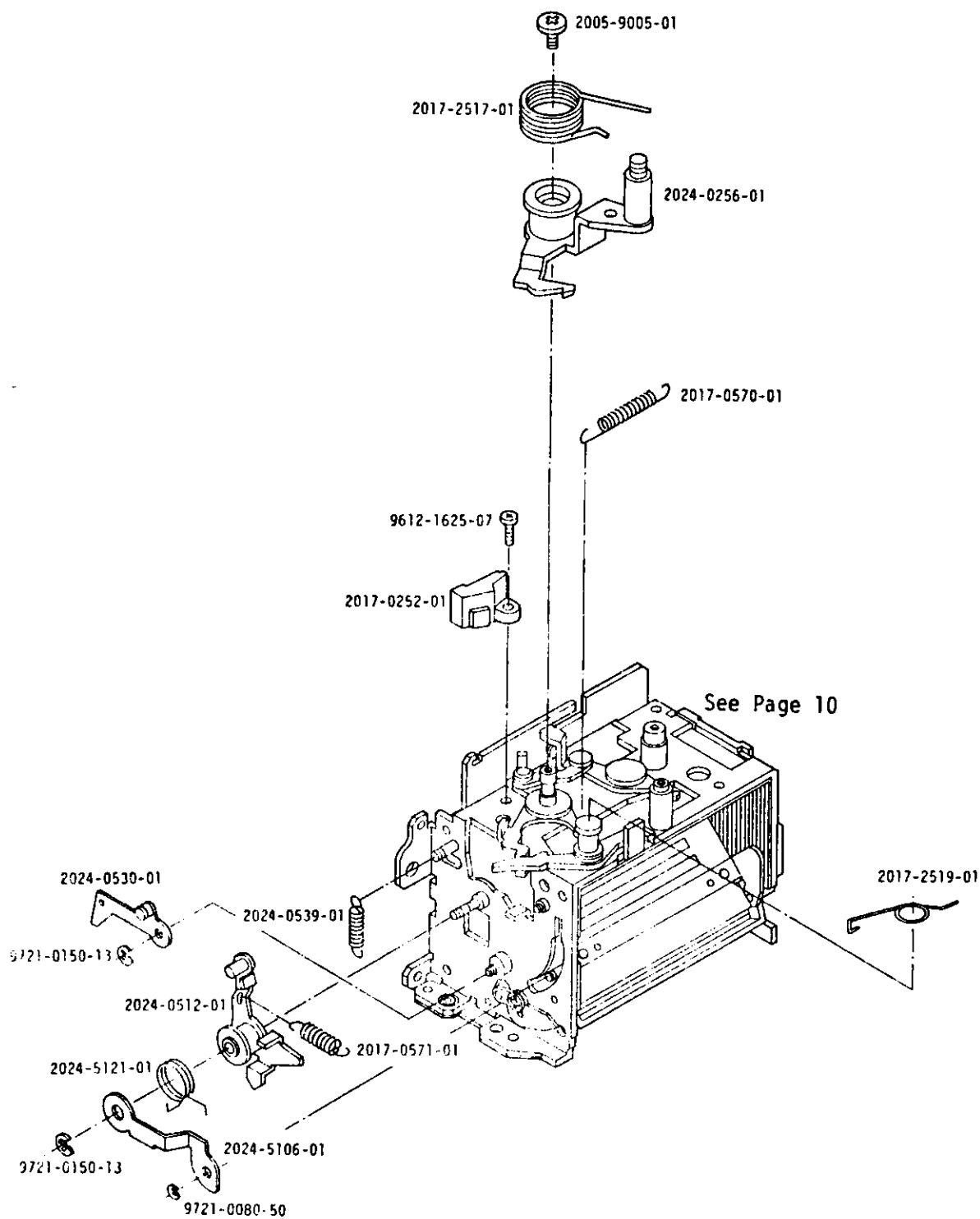
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Part No.	Part Name		Qty
2017-0103-03	Front base plate set	前枠セット	1
2017-0153-03	Remote control terminal set	リモコン台板セット	1
2024-0418-01	Self-timer plate set	セルフSW基板セット	1
2024-0534-01	Magnetic release base plate set	絞りストップ台板セット	1
2017-1006-02	Lens lock lever	レンズロックレバー	1
2017-1008-02	Mirror box light shield plate	ミラーボックス遮光板	1
2006-1014-02	Lock lever spring	ロックレバーSP	1
2017-2205-01	Lead wire pressure	コード押え	1
2009-5038-01	Penta. front cushion	ペンタ前面押えクッション	2
2024-9101-01	Lens lock axis	レンズロック軸	1
2017-9107-01	Screw	止めねじ	1
9611-1625-01	Phillips type screw	十字穴付なべ小ねじ	3
9611-1625-07	Phillips type screw	十字穴付なべ小ねじ	2
9612-1625-07	Phillips type screw	十字穴付なべ小ねじ	4
9612-1630-07	Phillips type screw	十字穴付なべ小ねじ	2

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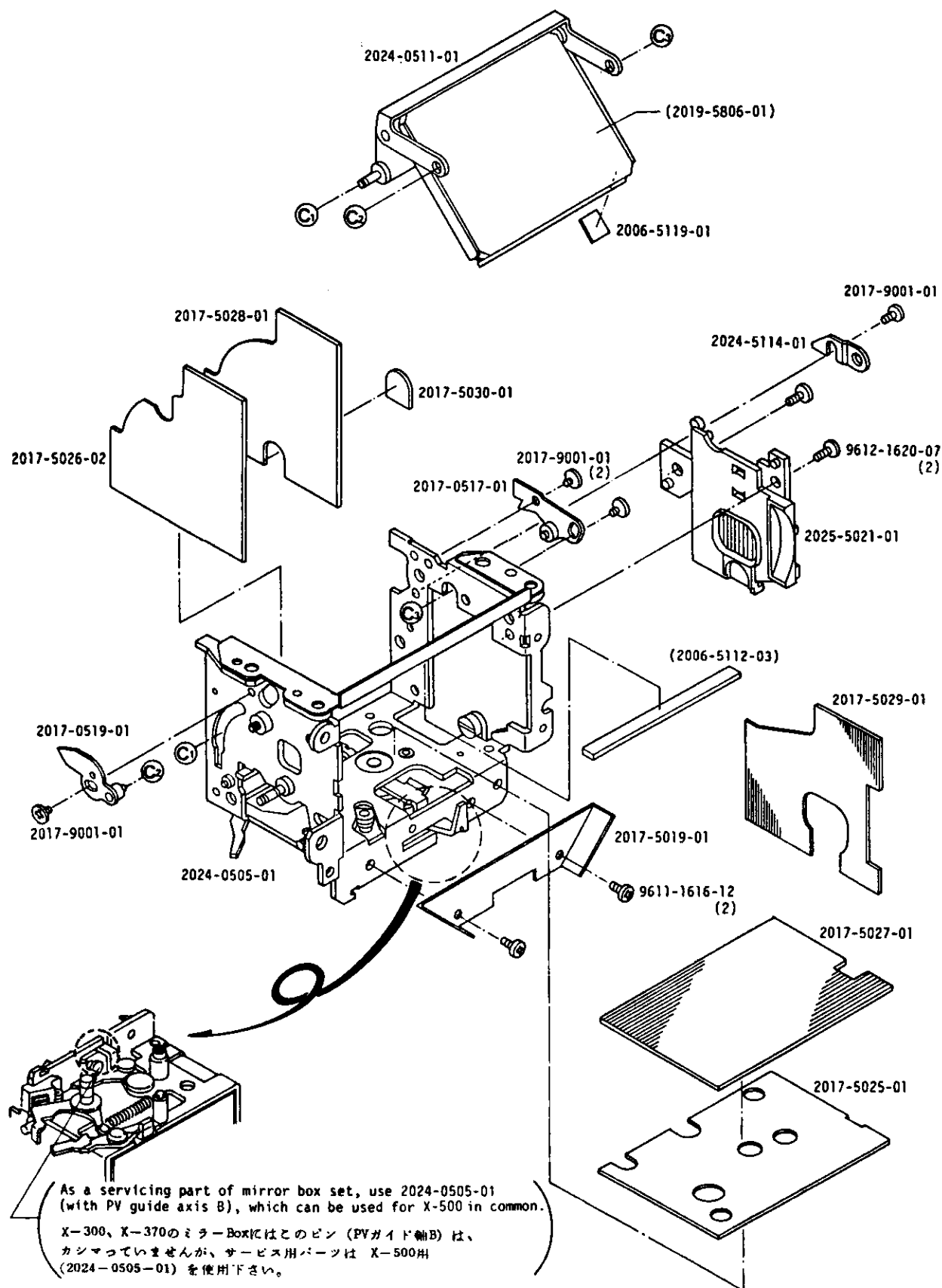
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Part No.	Part Name		Qty
2017-0252-01	MP return stopper set	MP戻しストッパーセット	1
2024-0256-01	MP return lever set	MP戻しレバーセット	1
2024-0512-01	Mirror operation lever set	ミラー駆動レバーセット	1
2024-0530-01	Mirror delay lever set	ミラー遅延レバーセット	1
2024-0539-01	Mirror delay spring set	ミラー遅延SPセット	1
2017-0570-01	MP loop spring set	MPループSPセット	1
2017-0571-01	Mirror operation lever spring set	ミラー駆動SPセット	1
2017-2517-01	MP return spring	MP戻しSP	1
2017-2519-01	MP return stop lever spring	MP戻し係止レバーSP	1
2024-5106-01	Mirror operation lever-B	ミラー操作レバー-B	1
2024-5121-01	Mirror operation lever-B spring	ミラー抑えSP	1
2005-9005-01	Screw	MP戻しレバー抑えねじ	1
9612-1625-07	Phillips type screw	十字穴付なべ小ねじ	1
9721-0080-50	E ring	E リング	1
9721-0150-13	E ring	E リング	2

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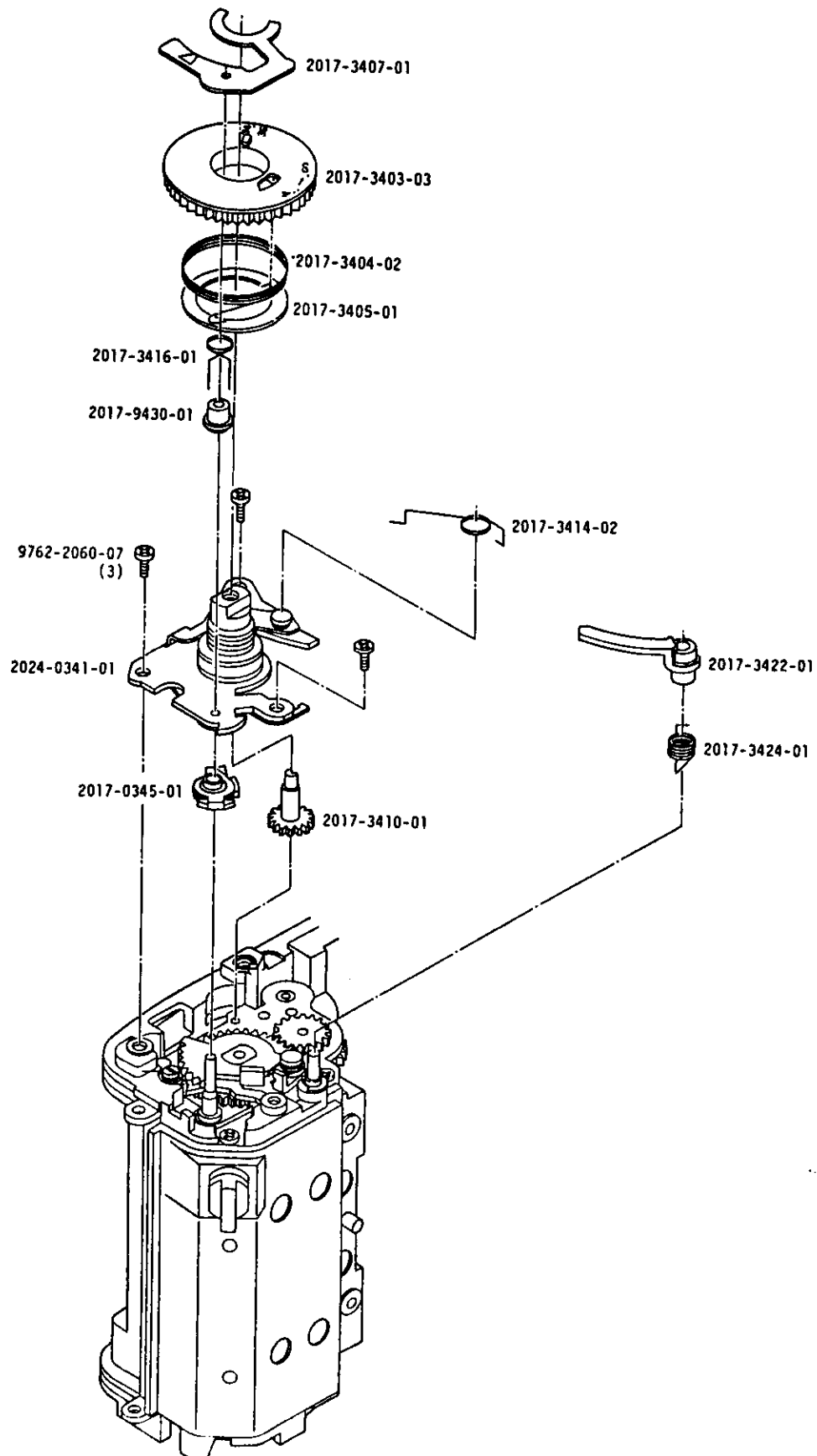
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Part No.	Part Name		Qty
2024-0505-01	Mirror box set	ミラーボックスセット	1
(2006-5112-03)	Mirror cushion	ミラークッション	1
2024-0511-01	Mirror holder set	ミラーホルダーセット	1
(2019-5806-01)	Mirror	ミラー	1
2017-0517-01	Mirror adjustment plate-B set	ミラー調整板Bセット	1
2017-0519-01	Mirror adjustment plate-A set	ミラー調整板Aセット	1
2017-5019-01	Mirror box apron	ミラーボックスエプロン	1
2025-5021-01	Mirror box side plate	ミラーボックス側板	1
2017-5025-01	Flare shield bottom plate	フレアー防止シート下板	1
2017-5026-02	Flare shield right plate	フレアー防止シート右板	1
2017-5027-01	Flare shield bottom plate-A	フレアー防止シート下	1
2017-5028-01	Flare shield right plate-A	フレアー防止シート右A	1
2017-5029-01	Flare shield left plate	フレアー防止シート左	1
2017-5030-01	Flare shield right plate-B	フレアー防止シート右B	1
2024-5114-01	Mirror support stopper	ミラー補助ストッパーB	1
2006-5119-01	Mirror stopper gum	ミラーストッパーゴム	1
2017-9001-01	Screw	調整板押ビス	4
9611-1616-12	Phillips type screw	十字穴付なべ小ねじ	2
9612-1620-07	Phillips type screw	十字穴付なべ小ねじ	2

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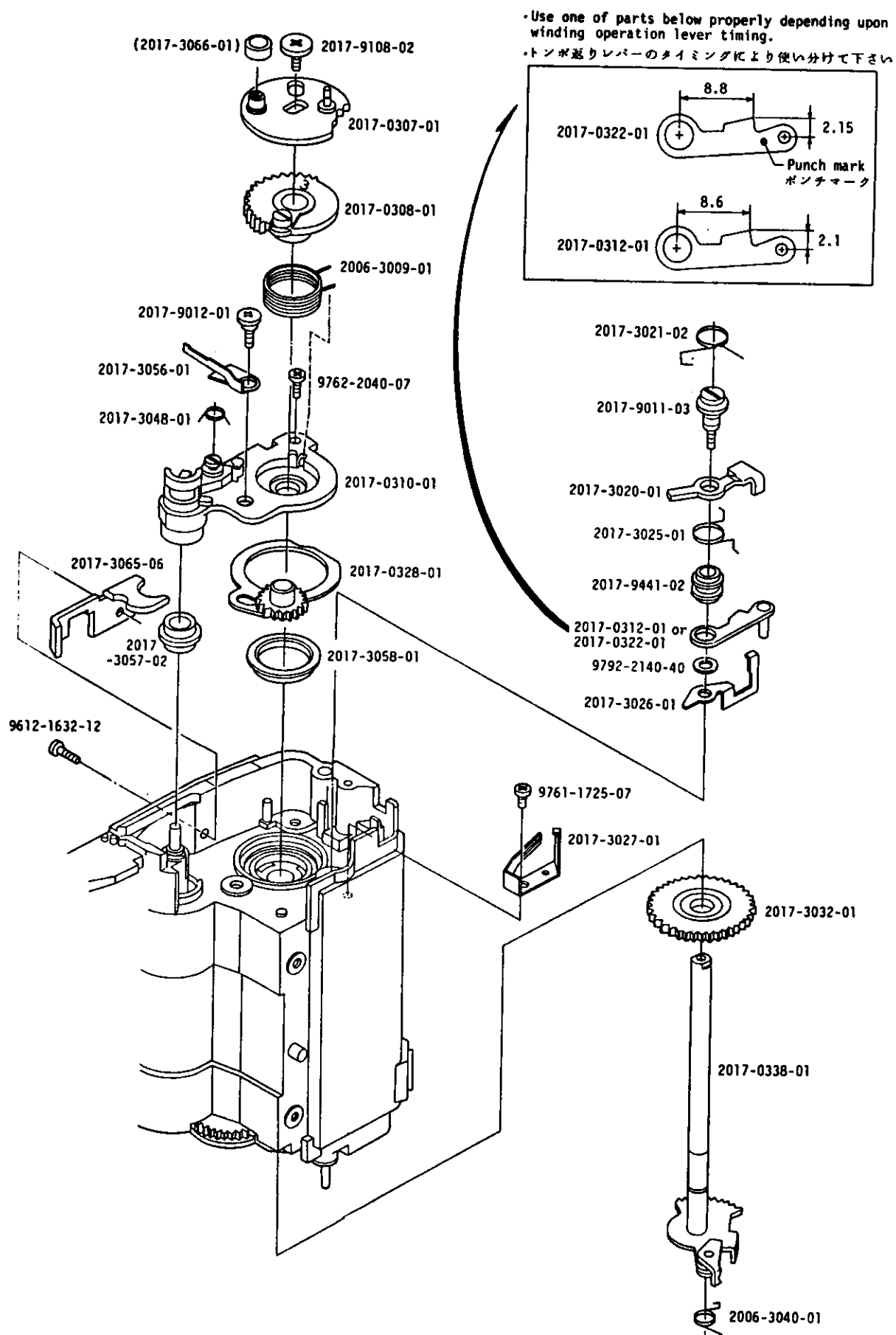
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Part No.	Part Name		Qty
2024-0341-01	Winding base plate-B set	巻取台板Bセット	1
2017-0345-01	Winding operation lever set	トンボ返りレバーセット	1
2017-3403-03	Counter dial	カウンターラチェット	1
2017-3404-02	Counter return spring	カウンター戻しSP	1
2017-3405-01	Washer	カウンター補助ワッシャー	1
2017-3407-01	Counter index	カウンター指標板	1
2017-3410-01	Counter operation gear	フィルムカウンターギヤー	1
2017-3414-02	Return spring	カウンターレバー操作SP	1
2017-3416-01	Winding operation lever spring	トンボ返りレバーSP	1
2017-3422-01	Safe loading signal lever	フィルム表示レバー	1
2017-3424-01	S.L.S. lever spring	SLS駆動SP	1
2017-9430-01	Collar	カウンター指標カラー	1
9762-2060-07	Tap tite screw	十字穴付なべタッブタイトねじ	3

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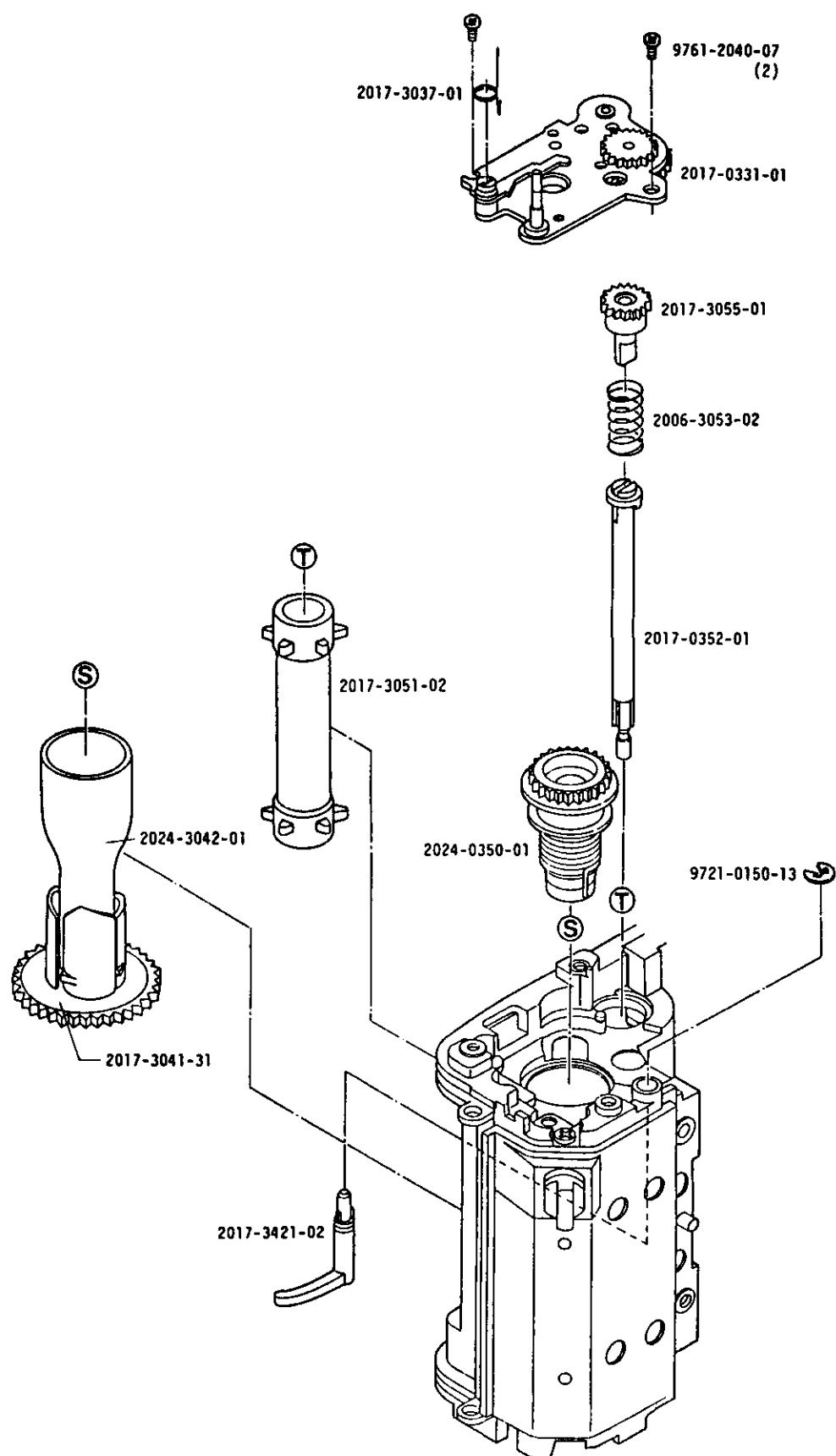
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Part No.	Part Name		Qty
2017-0307-01	Charge operation plate set	チャージ操作板セット	1
(2017-3066-01)	Stopper	巻上ストッパーゴム	1
2017-0308-01	Shutter charge gear-D set	シャッターチャージギヤ-Dセット	1
2017-0310-01	Winding shaft receiver set	巻取下軸受セット	1
2017-0312-01	Winding stop lever-A set	巻止めレバーAセット	} 1
2017-0322-01	Winding stop lever-A set	巻止めレバーAセット	
2017-0328-01	Gear-C base plate set	ギヤ-C台板セット	1
2017-0338-01	Winding shaft set	巻取操作板セット	1
2006-3009-01	Return spring	戻しSP	1
2017-3020-01	Reset lever	リセットレバー	1
2017-3021-02	Reset lever spring	リセットレバーSP	1
2017-3025-01	Reset lever surpport spring	リセットレバー補助SP	1
2017-3026-01	Contact-A (S4)	S4接片A	1
2017-3027-01	Contact-B (S4)	S4接片B	1
2017-3032-01	Winding gear	巻取ギヤ	1
2006-3040-01	Winding claw spring	巻取爪SP	1
2017-3048-01	Over-run stop lever spring	オーバーラン防止レバーSP	1
2017-3056-01	R button lock spring	R釦ロックばね	1
2017-3057-02	Sprocket receiver	スプロケット軸受	1
2017-3058-01	Collar	巻取下軸受補助カラー	1
2017-3065-06	Stopper	チャージ操作板ストッパー	1
2017-9011-03	Screw	巻止めレバー軸	1
2017-9012-01	Screw	巻止め軸受止めねじ	1
2017-9108-02	Screw	チャージ板押えビス	1
2017-9441-02	Collar	巻止めレバーカラー	1
9612-1632-12	Phillips type screw	十字穴付なべ小ねじ	1
9761-1725-07	Tap tite screw	十字穴付なべタップタイトねじ	1
9762-2040-07	Tap tite screw	十字穴付なべタップタイトねじ	1
9792-2140-40	Washer	薄ワッシャー	1

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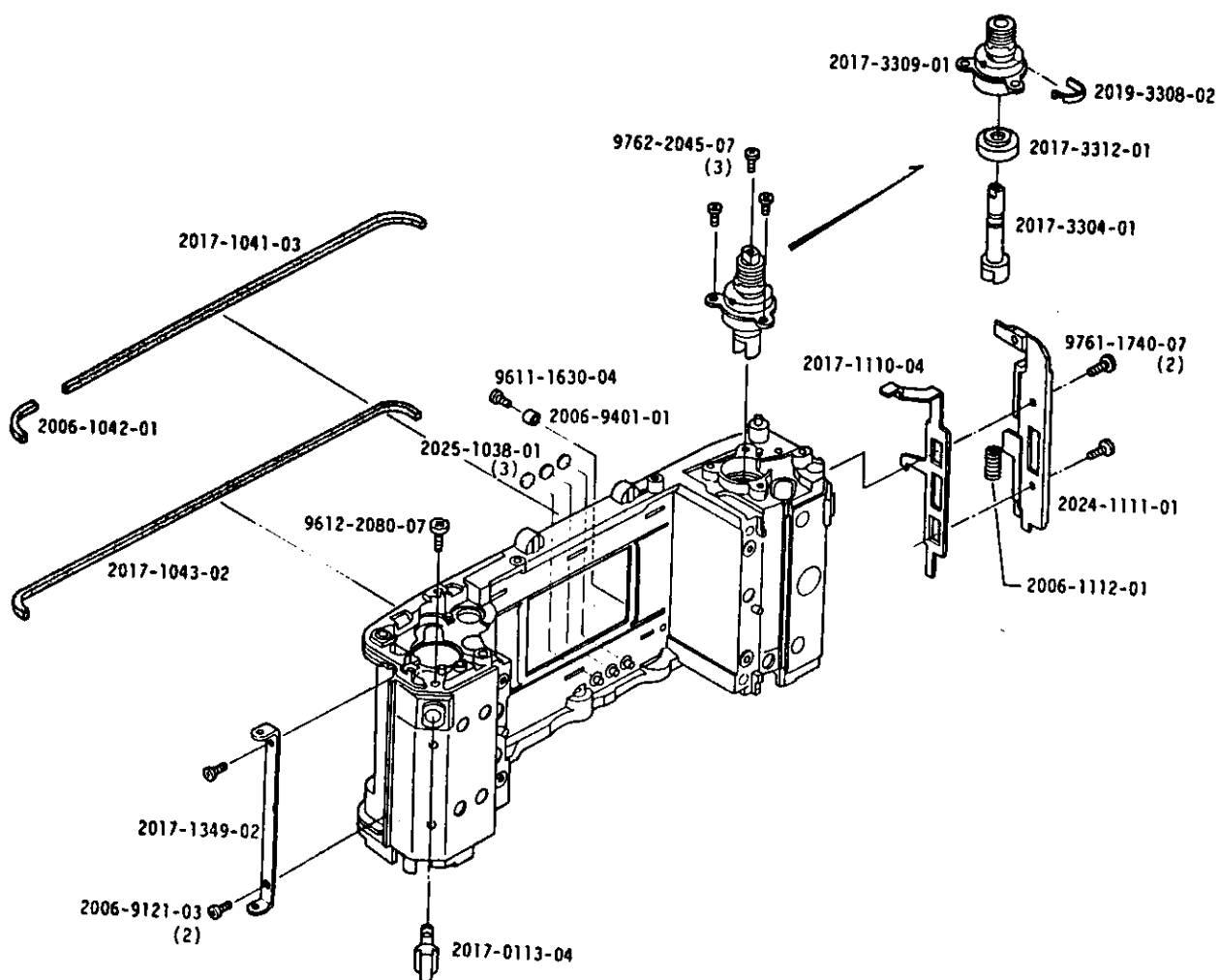
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Part No.	Part Name		Qty
2017-0331-01	Winding base plate-A set	巻取台板Aセット	1
2024-0350-01	Spool friction gear set	スプールフリクション ギヤーセット	1
2017-0352-01	Sprocket shaft set	スプロケット軸セット	1
2017-3037-01	Reversion stop lever spring	逆転止めレバーSP	1
2017-3041-31	Spool	スプール	1
2024-3042-01	Spool inner barrel	スプール内筒	1
2017-3051-02	Sprocket	スプロケット	1
2006-3053-02	R button release spring	R釦解除SP	1
2017-3055-01	Sprocket gear	スプロケットギヤー	1
2017-3421-02	Film indication filler	フィルム表示ファイラー	1
9721-0150-13	E ring	E リング	1
9761-2040-07	Tap tite screw	十字穴付なべタップタイトねじ	2

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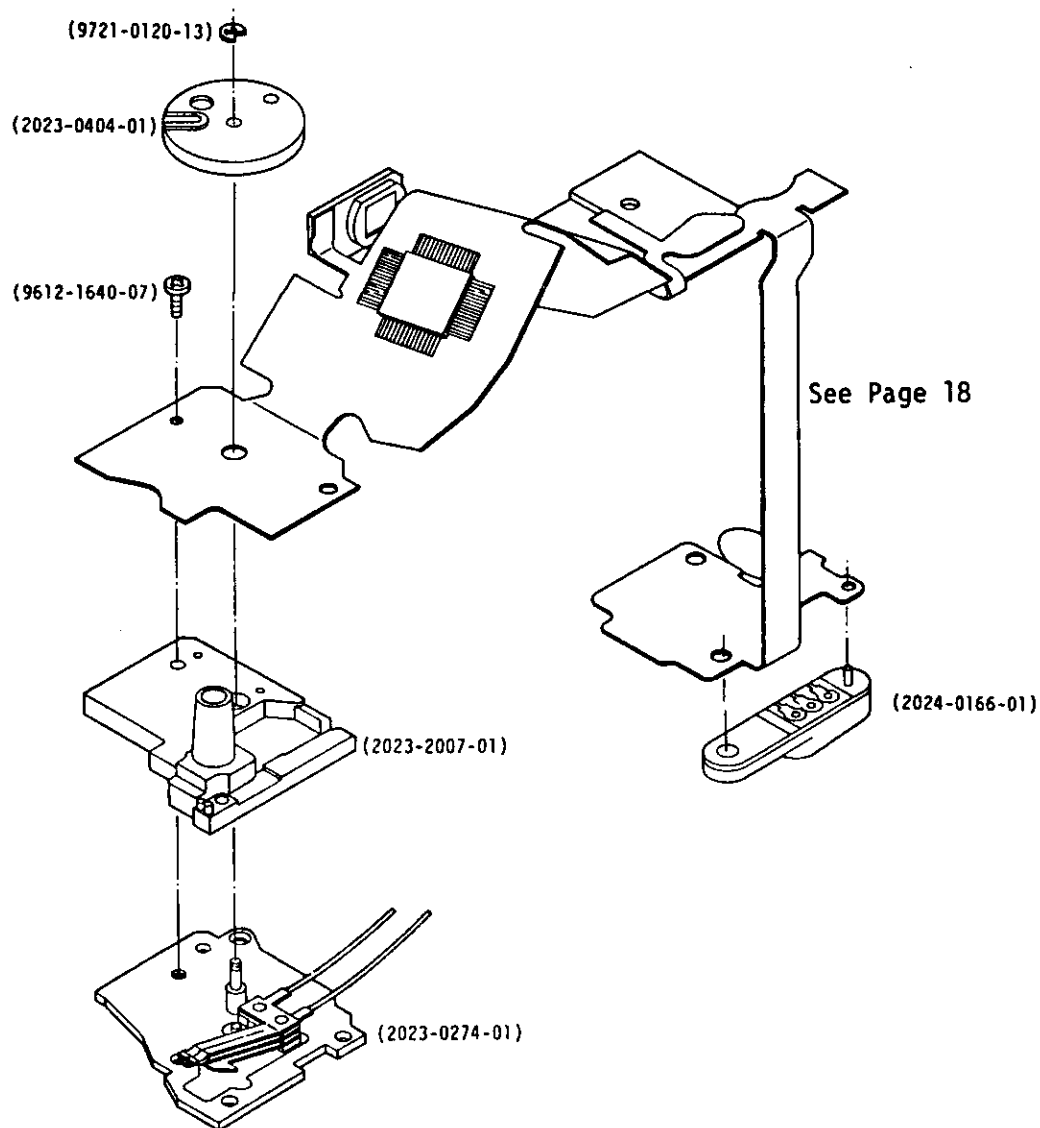


Part No.	Part Name		Qty
2017-0113-04	Strap hanger set	吊環セット	1
2025-1038-01	Mask sheet	信号ピンマスクシート	3
2017-1041-03	Light shield packing-A	遮光パッキンA	1
2006-1042-01	Light shield packing-B	遮光パッキンB	1
2017-1043-02	Light shield packing-C	遮光パッキンC	1
2017-1110-04	Back cover lock lever	裏蓋ロックレバー	1
2024-1111-01	Lock cover	ロックカバー	1
2006-1112-01	Back cover lock spring	裏蓋ロックSP	1
2017-1349-02	Hinge	ヒンジ	1
2017-3304-01	Rewinding fork	巻戻しフオーク	1
2019-3308-02	Rewinding friction spring	巻戻しフリクションSP	1
✓2017-3309-01	Rewinding axis receiver	巻戻し軸受	1
2017-3312-01	Light shield collar	巻戻し遮光カラー	1
2006-9121-03	Tapping screw	止めねじ	2
2006-9401-01	Film guide collar	フィルムガイドカラー	1
9611-1630-04	Phillips type screw	十字穴付なべ小ねじ	1
9612-2080-07	Phillips type screw	十字穴付なべ小ねじ	1
9761-1740-07	Tap tite screw	十字穴付なべタップタイトねじ	2
9762-2045-07	Tap tite screw	十字穴付なべタップタイトねじ	3

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Assy. Part No.2025-0401-01

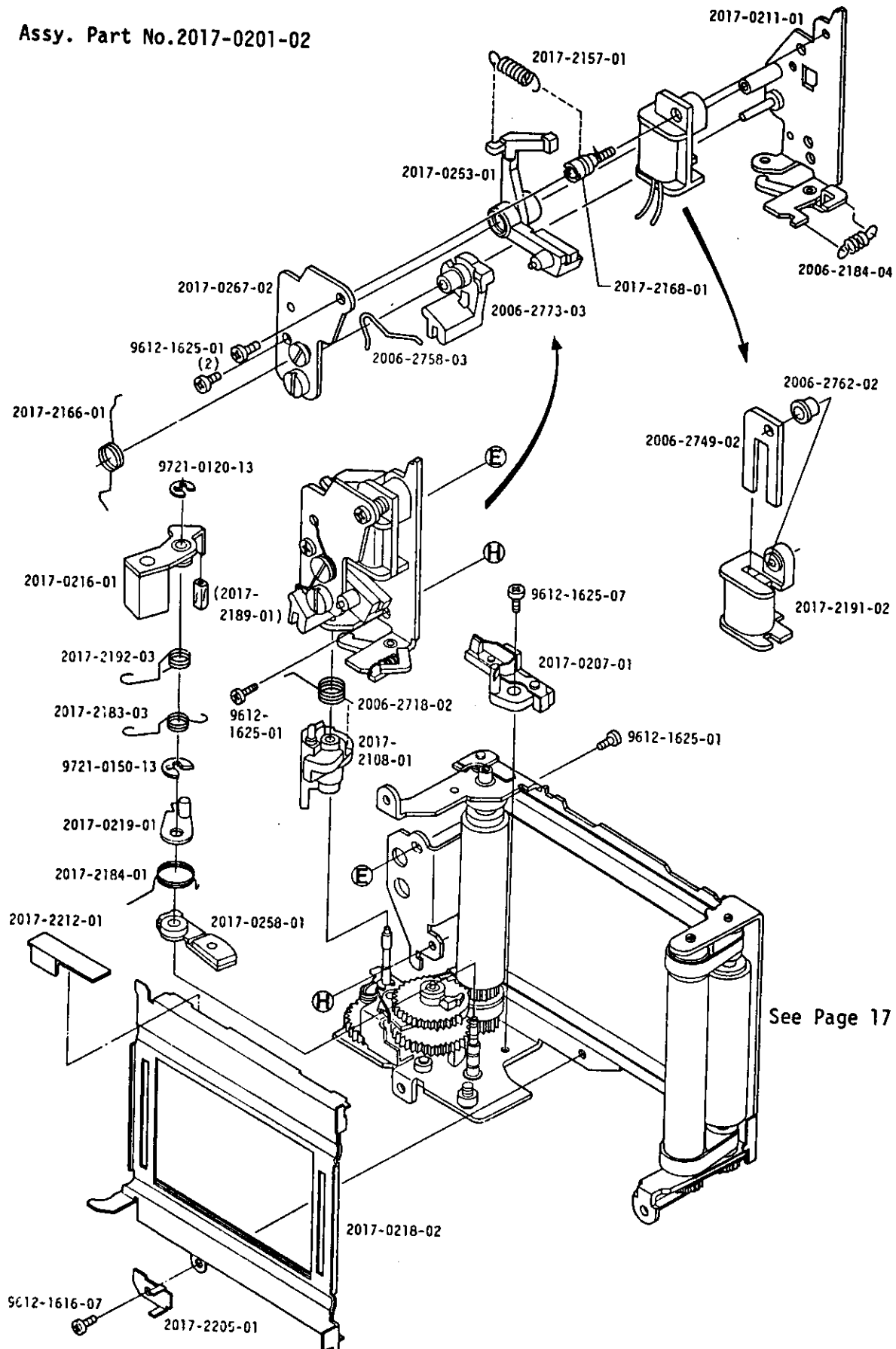


Part No.	Part Name		Qty
2025-0401-01	Flexible PC board	フレキシブル基板セット	1
(2024-0166-01)	Motor drive connect holder set	モータラ接点ホルダーセット	1
(2023-0274-01)	Shutter dial plate set	シャッターダイヤル台板セット	1
(2023-0404-01)	TV contact set	TV接片ホルダーセット	1
(2023-2007-01)	Shutter dial holder	シャッターダイヤルホルダー	1
(9612-1640-07)	Phillips type screw	十字穴付なべ小ねじ	1
(9721-0120-13)	E ring	E リング	1

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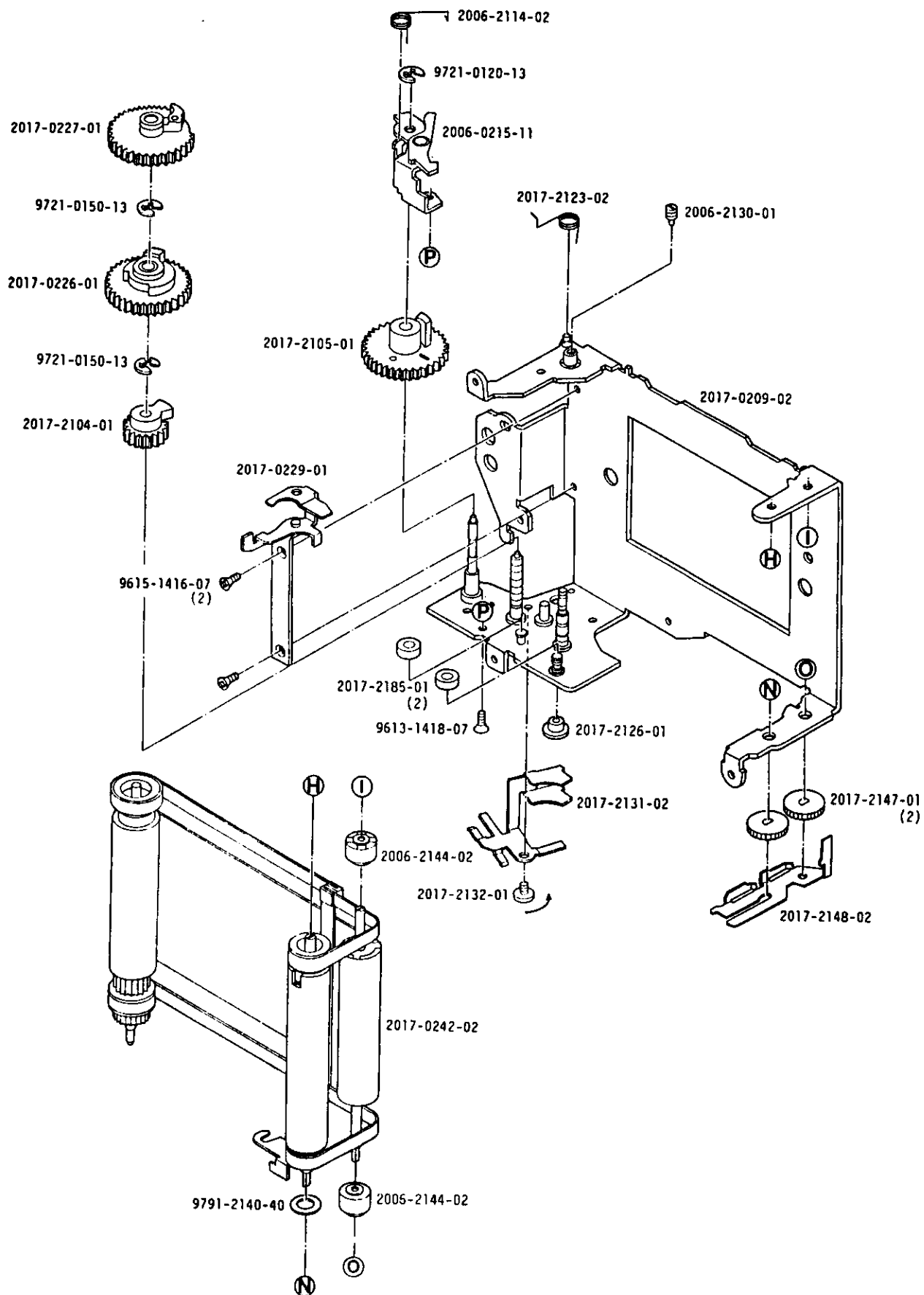
Assy. Part No.2017-0201-02



Part No.	Part Name		Qty
2017-0201-02	Shutter block	シャッターブロック	1
2017-0207-01	X contact plate set	X接片セット	1
2017-0211-01	Control base plate set	制御台板セット	1
2017-0216-01	2nd. curtain brake lever set	二幕ブレーキレバーセット	1
(2017-2189-01)	Isolation tube	X接片絶縁チューブ	1
2017-0218-02	Shutter cover plate set	シャッターカバー板セット	1
2017-0219-01	1st. curtain support lever set	一幕ブレーキ補助 レバーセット	1
2017-0253-01	2nd. curtain release lever set	二幕解除レバーセット	1
2017-0258-01	1st. curtain brake lever set	一幕ブレーキレバーセット	1
2017-0267-02	Winding base plate set	Mag. 配線基板セット	1
2017-2108-01	Control cam	制御カム	1
2017-2157-01	2nd. curtain release lever spring	二幕解除レバーSP	1
2017-2166-01	Trigger contact	トリガー接片	1
2017-2168-01	Screw	トリガー基板取付ねじ	1
2017-2183-03	1st. curtain brake spring-B	一幕ブレーキSP-B	1
2006-2184-04	2nd. curtain brake spring	制御カム係止レバーSP	1
2017-2184-01	1st. curtain brake spring-A	一幕ブレーキSP-A	1
2017-2191-02	Shutter magnet bobbin	シャッターマグネットボビン	1
2017-2192-03	2nd. curtain brake spring-A	二幕ブレーキSP-A	1
2017-2205-01	Lead wire pressure	リード線押え	1
2017-2212-01	Shutter light shield plate	シャッター遮光シート	1
2006-2718-02	Control cam operation spring	制御カム駆動SP	1
2006-2749-02	Shutter magnet core	シャッターマグネット鉄芯	1
2006-2758-03	Over charge spring	吸着片オーバーチャージSP	1
2006-2762-02	Magnet collar	マグネット取付カラー	1
2006-2773-03	Trigger contact operation lever	トリガー接片作動レバー	1
9612-1616-07	Phillips type screw	十字穴付なべ小ねじ	1
9612-1625-01	Phillips type screw	十字穴付なべ小ねじ	4
9612-1625-07	Phillips type screw	十字穴付なべ小ねじ	1
9721-0120-13	E ring	E リング	1
9721-0150-13	E ring	E リング	1

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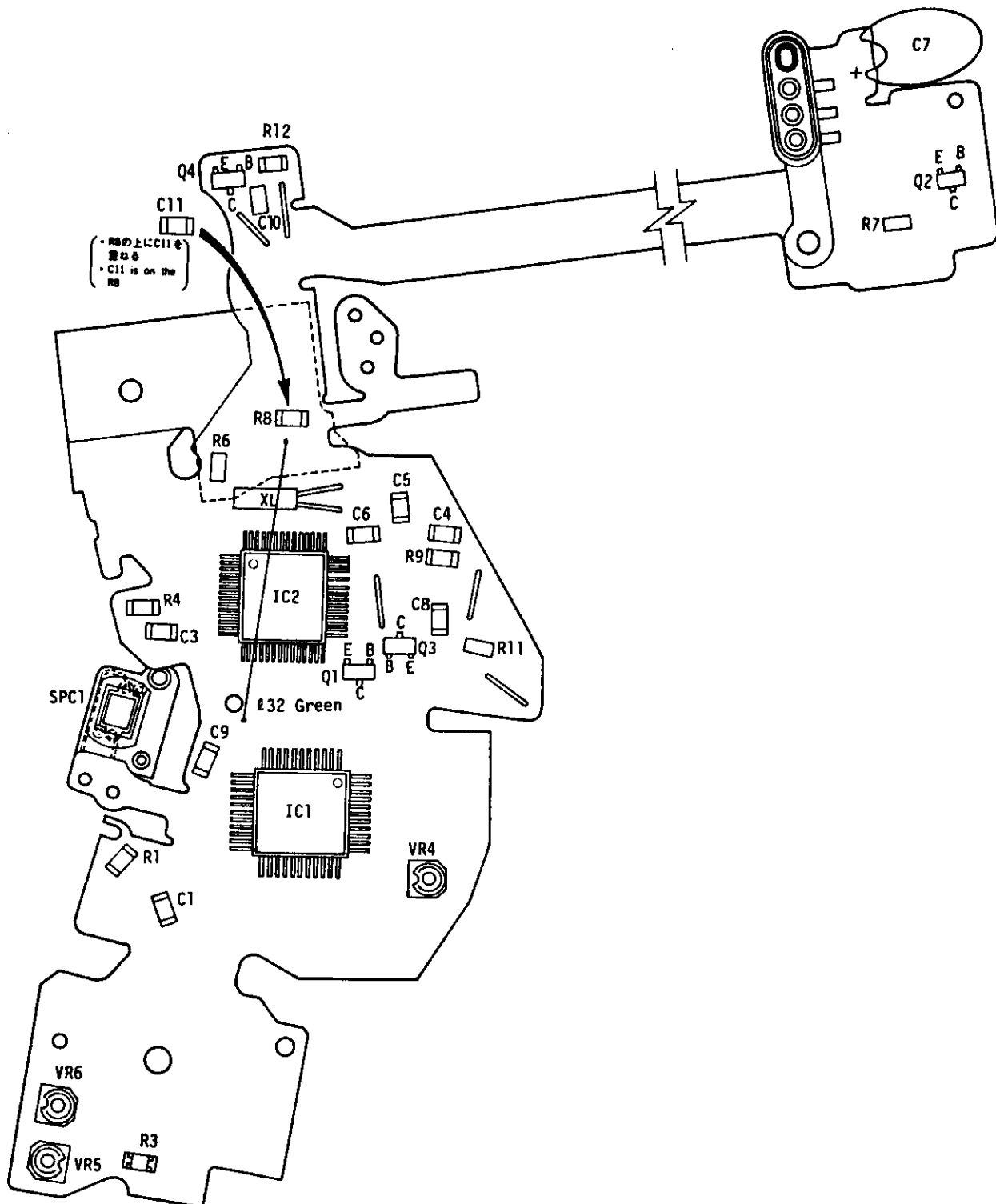
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Part No.	Part Name		Qty
2017-0209-02	Shutter base plate set	シャッター台板セット	1
2006-0215-11	1st. curtain stop lever set	一幕係止レバーセット	1
2017-0226-01	1st. curtain shutter gear set	一幕シャッターギヤーセット	1
2017-0227-01	2nd. curtain shutter gear set	二幕シャッターギヤーセット	1
2017-0229-01	2nd. curtain stop lever set	二幕係止レバーセット	1
2017-0242-02	Shutter curtain set	シャッター幕セット	1
2017-2104-01	Charge gear-B	チャージギヤー-B	1
2017-2105-01	Charge gear-A	チャージギヤー-A	1
2006-2114-02	1st. curtain stop lever spring	一幕係止レバーSP	1
2017-2123-02	2nd. curtain stop lever spring	二幕係止レバーSP	1
2017-2126-01	Curtain shaft receiver-B	幕軸受B	1
2006-2130-01	Adjusting screw	幕軸調整ビス	1
2017-2131-02	Ribbon guide plate	幕リボンガイド板	1
2017-2132-01	Screw	幕リボンガイド板止めねじ	1
2006-2144-02	2nd. curtain roller-B	二幕ローラー-B	2
2017-2147-01	Ratchet	SP筒軸止めラチェット	2
2017-2148-02	Ratchet stop spring	ラチェット止めばね	1
2017-2185-01	Brake stopper	ブレーキストッパー	2
9613-1418-07	Phillips type screw	十字穴付半丸皿小ねじ	1
9615-1416-07	Phillips type screw	十字穴付皿小ねじ	2
9721-0120-13	E ring	E リング	1
9721-0150-13	E ring	E リング	2
9791-2140-40	Washer	薄ワッシャー	1

X-300 Code No.2025-100

X-370 Code No.2025-300



Flexible PC board set

Assy. Part No. 2025-0401-01

Assy. Part Name フレキシブル基板セット

Symbol	Part No.	Part Name (Maker, Type)	Qty.
IC1	2024-4301-01	IC (OKI,MSA402GS)	1
IC2	2024-4302-02	IC (OKI,MSM5237GS)	1
Q1	9363-1032-01	Transistor (TOSHIBA,2SA1162)	1
	9363-1032-02	Transistor (TOSHIBA,2SA1162)	
	9363-1032-03	Transistor (TOSHIBA,2SA1162)	
Q2	9362-1261-01	Transistor (SANYO,2SD1048)	1
	9362-1261-02	Transistor (SANYO,2SD1048)	
	9362-1261-03	Transistor (SANYO,2SD1048)	
Q3,Q4	9362-1032-01	Transistor (TOSHIBA,2SC2712)	2
	9362-1032-02	Transistor (TOSHIBA,2SC2712)	
	9362-1032-03	Transistor (TOSHIBA,2SC2712)	
	9362-1032-04	Transistor (TOSHIBA,2SC2712)	
XL	9373-4162-01	Crystal resonator (SEIKO,C-2-32.7)	1
SPC1	2024-0491-01	Silicon Photo cell	1
R4,R1	9432-2246-62	Fixed resistor (KYOTO CERAMIC,1/8W 220k Ω)	2
R3	9432-1536-62	Fixed resistor (KYOTO CERAMIC,1/8W 15k Ω)	1
R6	9422-1016-62	Fixed resistor (MATSUSHITA,1/8W 100 Ω)	1
R7	9422-1026-62	Fixed resistor (MATSUSHITA,1/8W 1k Ω)	1
R8	9432-3357-61	Fixed resistor (MATSUSHITA,1/8W 3.3k Ω)	1
R9	9432-1068-61	Fixed resistor (HOKURIKU,1/8W 10M Ω)	1
	9432-2068-61	Fixed resistor (HOKURIKU,1/8W 20M Ω)	
	9432-3068-61	Fixed resistor (HOKURIKU,1/8W 30M Ω)	
R11	9422-6836-62	Fixed resistor (MATSUSHITA,1/8W 68k Ω)	1
	9422-8236-62	Fixed resistor (MATSUSHITA,1/8W 82k Ω)	
	9422-1246-62	Fixed resistor (MATSUSHITA,1/8W 120k Ω)	
	9422-1846-62	Fixed resistor (MATSUSHITA,1/8W 180k Ω)	
	9422-3946-62	Fixed resistor (MATSUSHITA,1/8W 390k Ω)	
R12	9431-3348-62	Fixed resistor (ALPS,1/16W 330k Ω)	1
VR4	9472-3329-63	Variable resistor (MATSUSHITA,EVM-14G 3.3k Ω)	1
VR5	9472-1539-63	Variable resistor (MATSUSHITA,EVM-14G 15k Ω)	1
VR6	9472-1039-63	Variable resistor (MATSUSHITA,EVM-14G 10k Ω)	1
C1	9565-1034-64	Condenser (Ceramic)(MURATA,0.01 μ F/50V)	1
C3	9564-4734-64	Condenser (Ceramic)(MURATA,0.047 μ F/25V)	1
C4	9564-1034-61	Condenser (Ceramic)(KYOTO CERAMIC,0.01 μ F/25V)	1
C6,C5	9564-2204-65	Condenser (Ceramic)(KYOTO CERAMIC,22PF/25V)	2
C7	9531-1575-61	Condenser (Tantalum)(MATSUO,150 μ F/3.15V)	1
C8	9565-3338-65	Condenser (Ceramic)(MURATA,0.033 μ F/50V)	1
C9	9565-4705-62	Condenser (Ceramic)(MURATA,47PF/50V)	1
C10	9565-4738-65	Condenser (Ceramic)(MURATA,0.047 μ F/50V)	1
C11	9565-3324-64	Condenser (Ceramic)(MURATA,3300PF/50V)	1
Q32	9391-0807-05	Lead wire (Green, ϕ 0.08/7, $l=35$)	1

Lead wires list

Symbol	Part No.	Color	Type	Qty.
ℓ 3	9391-0507-03	Orange	φ 0.05/7 ℓ =70	1
ℓ 4	9391-0507-06	Blue	φ 0.05/7 ℓ =70	1
ℓ 5	9391-0507-01	Brown	φ 0.05/7 ℓ =80	1
ℓ 6	9391-0507-01	Brown	φ 0.05/7 ℓ =85	1
ℓ 7	9391-0507-05	Green	φ 0.05/7 ℓ =90	1
ℓ 8	9391-0507-03	Orange	φ 0.05/7 ℓ =95	1
ℓ 10	9391-0807-08	Gray	φ 0.08/7 ℓ =40	1
ℓ 11	9391-0807-06	Blue	φ 0.08/7 ℓ =95	1
ℓ 12	9391-0807-04	Yellow	φ 0.08/7 ℓ =95	1
ℓ 13	9391-0807-02	Red	φ 0.08/7 ℓ =105	1
ℓ 14	9391-0807-09	White	φ 0.08/7 ℓ =75	1
ℓ 15	9391-0807-03	Orange	φ 0.08/7 ℓ =105	1
ℓ 16	9391-0807-08	Gray	φ 0.08/7 ℓ =65	1
ℓ 17	9391-0807-05	Green	φ 0.08/7 ℓ =115	1
ℓ 19	9391-0807-00	Black	φ 0.08/7 ℓ =35	1
ℓ 21	9391-0807-04	Yellow	φ 0.08/7 ℓ =160	1
ℓ 22	9391-0807-02	Red	φ 0.08/7 ℓ =30	1
ℓ 25	9391-0807-00	Black	φ 0.08/7 ℓ =50	1
ℓ 26	9391-0807-00	Black	φ 0.08/7 ℓ =80	1
ℓ 27	9391-0807-07	Purple	φ 0.08/7 ℓ =145	1
ℓ 28	9391-0807-07	Purple	φ 0.08/7 ℓ =50	1
ℓ 30	9391-0807-09	White	φ 0.08/7 ℓ =65	1
ℓ 32	9391-0807-05	Green	φ 0.08/7 ℓ =35	1
ℓ 35	9391-0807-01	Brown	φ 0.08/7 ℓ =70	1
ℓ 36	9391-0807-08	Gray	φ 0.08/7 ℓ =70	1
ℓ 37	9391-0807-11	Light Blue	φ 0.08/7 ℓ =170	1
ℓ 39	9391-0507-00	Black	φ 0.05/7 ℓ =30	1

REPAIR

- The contents of this manual are mainly related to the adjustment procedures for the 2025.

Except for Exposure adjustment, Installation of external parts, see 2024 Service Manual.
 "Page" column provide with ※ shows related page of 2024 Service Manual Repair Guide.

		※
■ Assembly and adjustment procedures	Page	Page
① Body assembly 1 (spool, sprocket, winding base plate A).....	1	
■ Sprocket gear positioning method	2	
② Body assembly 2 (winding shaft)	3	
■ Winding gear positioning method	4	
■ Reversion stop lever stop timing adjustment	4	
③ Body assembly 3 (winding base plate B)	5	
■ Overrun eccentric pin adjustment	6	
■ Check of winding mechanism.....	7 ~ 8	
④ Front base plate block assembly 1 (shutter, mirror box, magnet base plate)	9	
■ Check of magnet attraction	12	
⑤ Front base plate block assembly 2 (finder block, bayonet mount, front cover, etc.)	13	
⑥ Front base plate block assembly (mounting front base plate block onto body)	14	
■ Shutter gear position adjustment.....	15	
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⑦ Flexible P.C board installation	17	
■ Body back adjustment	19	
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■ Exposure adjustment		
① ASA inclination adjustment	3	
② A/D conversion reference voltage adjustment.....	3	
③ Manual SS adjustment	4	
④ A-auto level adjustment	5	
■ Check of LED indication	5	
■ Check and adjustment of release lock voltage and LED blink voltage	6	
■ Check of limits at high and low shutter speeds	6	
■ Installation of external parts	7	
■ Shutter block assembly procedure	31	
■ Shutter block adjustment	8	
■ Mirror box assembly procedure	37	
■ Measuring instruments	41	
■ Focusing plate replacement procedure	42	

■ Adjustment and checks to be made

	*
	Page Page
[1] Body, winding unit	
■ Sprocket gear positioning	2
■ Winding gear positioning	4
■ Film counter operation gear positioning	5
■ Reversion stop lever stop timing adjustment	4
■ Overrun eccentric pin adjustment	6
■ Sprocket claw position check	7
■ Reversion stop lever timing check	7
■ Winding operation lever timing check	8
[2] Shutter operation	
■ Shutter gear position adjustment	15
■ Shutter charge adjustment	16
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■ Release lock voltage check	28
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[3] Shutter speed	
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[4] Auto exposure	
■ ASA inclination adjustment	3
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■ A-auto level adjustment	5
■ Check of release magnet attraction	12
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[5] LED	
■ Check of LED indication	5
■ Check of LED blink voltage	6
[6] Viewfinder, focusing	
■ Body back adjustment	19
■ Finder back adjustment	20
■ Mirror angle adjustment	39

■ Precautions

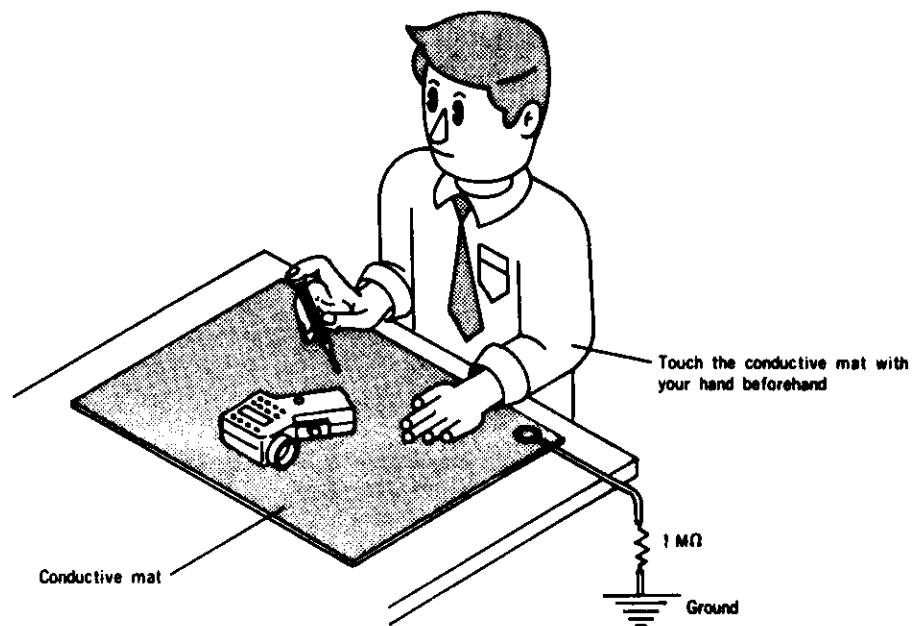
■ The following precautions must be taken concerning all plastic parts.

1. When cleaning, use Flonoxolve or alcohol. Do not use thinner, ketone, ether, etc.
2. Secure all parts with the specified screws, taking care not to exert excessive stress to them.

■ Handling of the flexible board

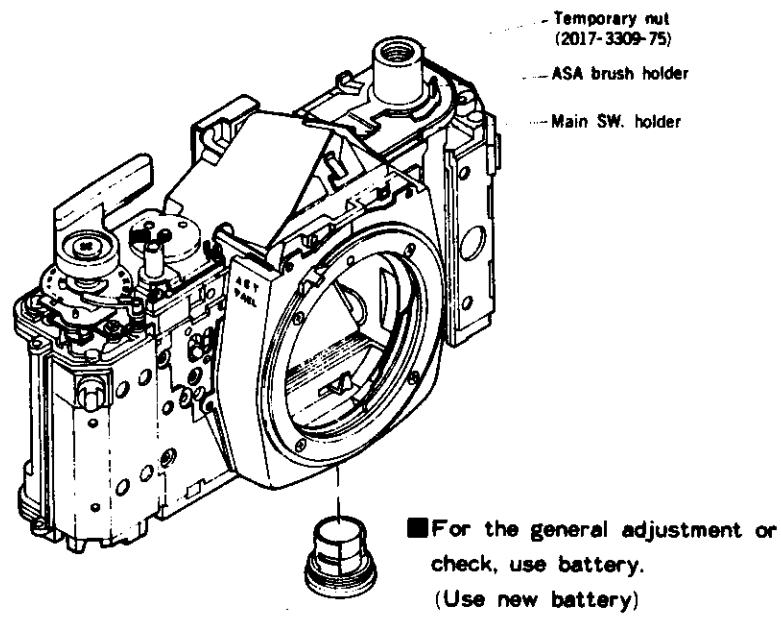
The flexible board uses MOS ICs and is very sensitive to static electricity. Therefore, the following points must be kept in mind when repairing.

- When handling the flexible board itself or wiring it to the body, use a conduction mat to prevent static electricity, and perform all work as shown in the illustration below.



- When grounding is impossible, connect the cable to a large metal plate (steel desk or shelf).

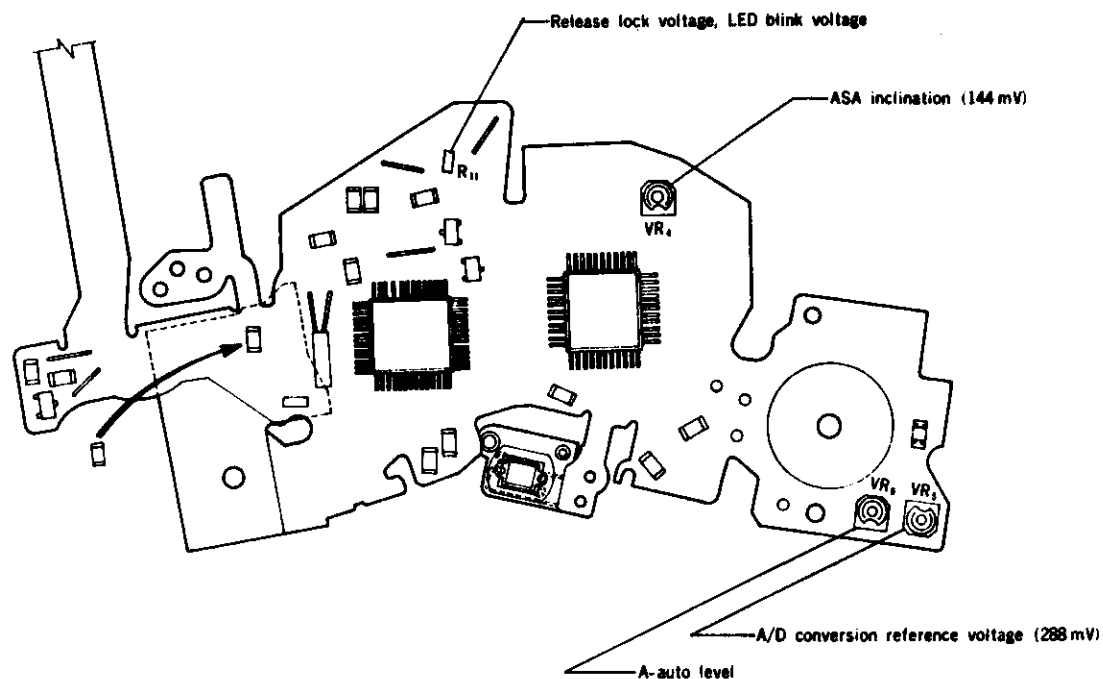
■ Preparation for adjustments



■ Exposure adjustment

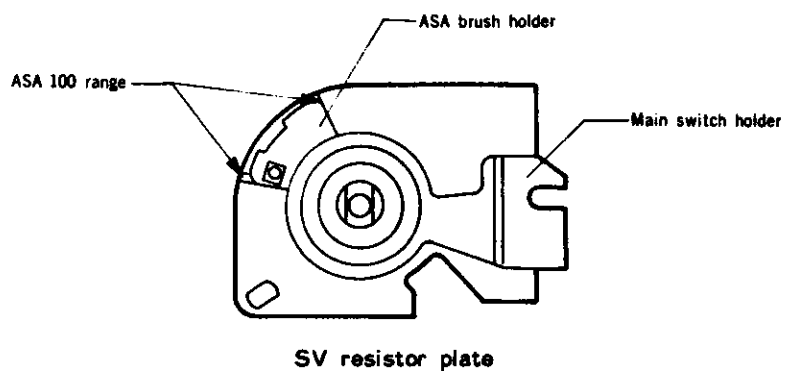
■ Resistor positions and adjustments

■ Fig. 1



■ Beforehand set ASA film speed to ASA 100 properly as below:
Set ASA brush holder within range of ASA 100.

■ Fig. 2



1 Adjustment of ASA inclination

■ Measuring instrument : Digital multimeter (Type 2508, 3476, 2507)

■ Adjustment procedure

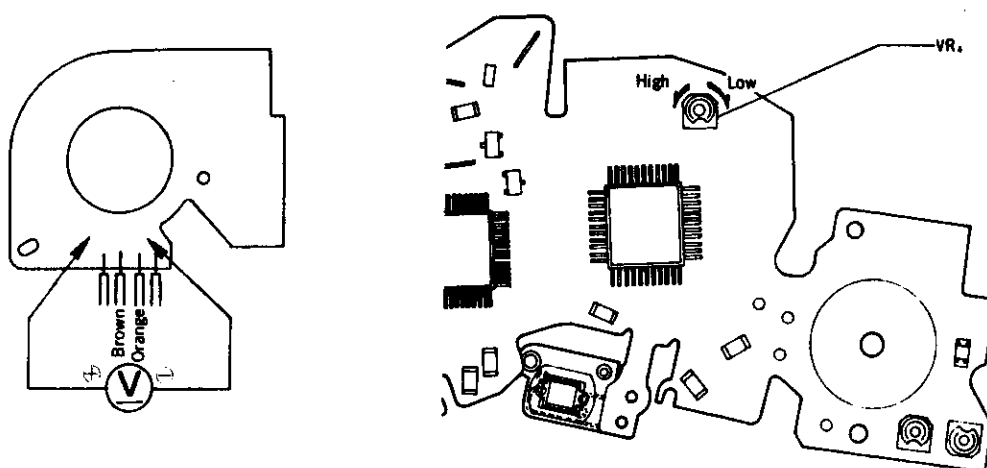
1. Set the metering switch to ON and adjust by turning VR₄ so that the voltage at the point in Fig. 1 is $144 \pm 2 \text{ mV}$ (In case of 25°C room temperature)

Depending on the temperature when adjusting, use the table below to get adjustment voltage.

■ Fig. 1

[Adjustment voltage]

Temperature (°C)	15±2.5	20±2.5	25±2.5	30±2.5
Adjustment voltage (mV)	139±2	141.5±2	144±2	146.5±2



2 Adjustment of A/D conversion reference voltage

■ Measuring instrument : Digital multimeter (Type 2508, 3476, 2507)

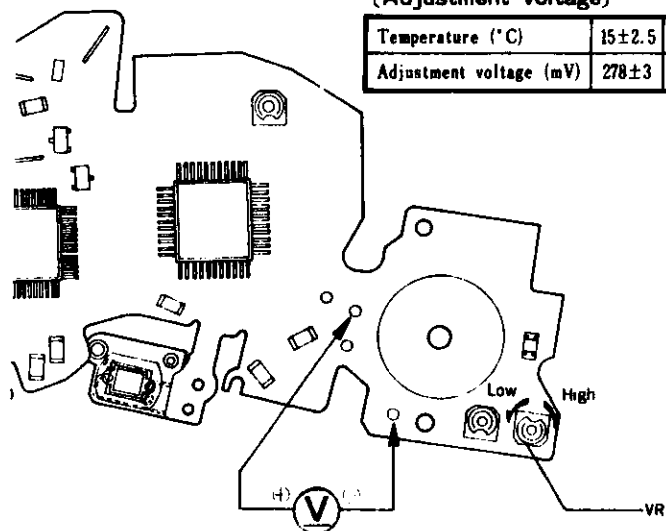
■ Adjustment procedure

1. Set the metering switch to ON and adjust by turning VR₅ so that the voltage at the point in Fig. 2 is $288 \pm 3 \text{ mV}$ (In case of 25°C room temperature)

Depending on the temperature when adjusting, use the table below to get adjustment voltage.

[Adjustment voltage]

Temperature (°C)	15±2.5	20±2.5	25±2.5	30±2.5
Adjustment voltage (mV)	278±3	283±3	288±3	293±3



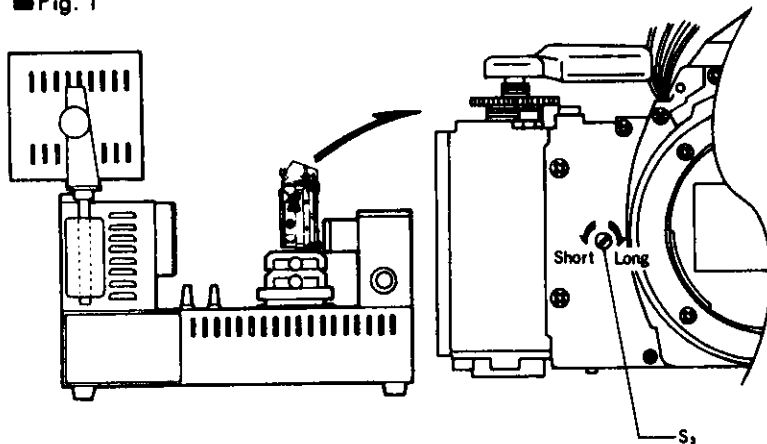
3 Adjustment of manual SS

■ Measuring instruments: Shutter tester (Model S-2101, FS-1DMN4)

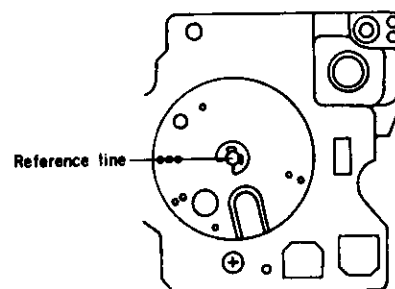
■ Adjustment procedure

- Determine position of TV brush, referring to Fig. 2, or looking at shutter speed LED.

■ Fig. 1



■ Fig. 2 Relation between TV brush holder position and manual SS



1. Shutter speed adjustment and check (see the table below)

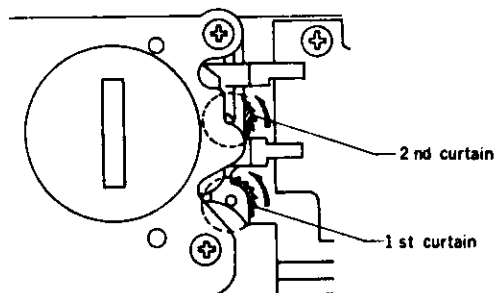
Step	Item	Part adjusted	Adjustment (check)	Remarks
①	1/1000 curtain speed check	—	(Both 1st & 2nd curtains are within 13 ms.)	If it is more than 13 ms or less than 10 ms, adjust the 2nd curtain speed.
②	1/1000 adjustment	S ₂ eccentric pin	0.98 ms	—
③	1/60 check	—	(16~18.5 ms)	—
④	X time lag	—	(Range A: 0.4 ms or more) (Range B: 2.4 ms or more)	Check it with SS 1/60 and if is defective, perform the adjustment on P. 8.

- When the exposure unevenness at steps ②~③ is over 0.3 EV in both B-A and B-C ranges, and over 0.4 EV in the A-C range, adjust the curtain speed as follows.
- For the shutter speed standard, refer to the inspection standard.

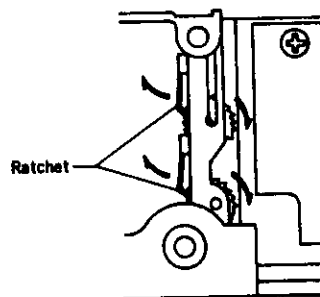
2. Curtain speed adjustment

Adjust by turning the ratchet so that the 1st and 2nd curtain speeds are $11 \pm 0.3 \text{ ms}$ at 1/1000.

■ Fig. 3 (Increasing the curtain speed)



■ Fig. 4 (decreasing the curtain speed)



- Remove the battery case base plate while pushing ratchet to release the ratchet claw and the ratchet return.
(Do not return it completely.)
- Return it sufficiently and adjust by slowly increasing the curtain speed.

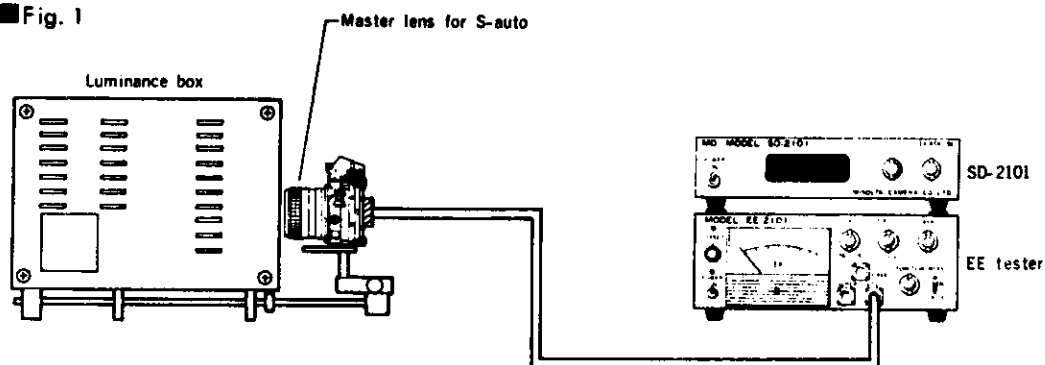
4 Adjustment of A-auto level, check of LED indication

- Measuring instruments : Luminance box (Model L-2101, L-222, L-223)
 : EE tester (Model EE-2101, EE-2111)
 : SS adaptor for EE tester (Model SD-2101)
 : Master lens for S-auto (2005-0001-75)

■ Adjustment procedure

1. Set the camera and measuring instruments as follows.
 - After setting the master lens, turn it counterclockwise to put aside the looseness to one side.

■ Fig. 1



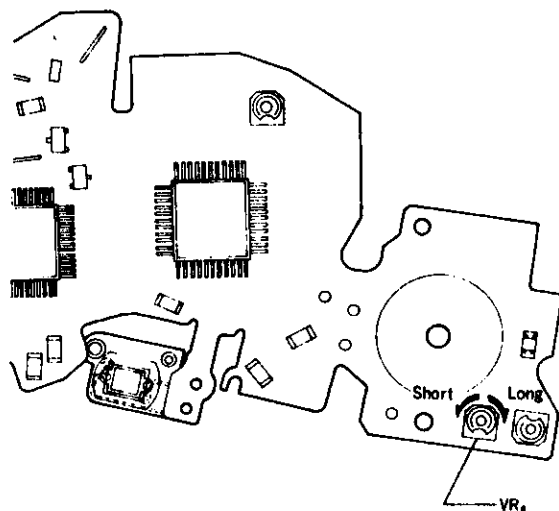
- Luminance box
K value : 1.2
* Luminance : EV 10, 15
- Camera
Shutter dial : A
ASA : 100
- Master lens
Aperture : F 5.6
Distance : ∞
- EE tester
K value dial : 1.2
ASA dial : 100
- SD-2101
Aperture switch : F 5.6
Luminance switch : Same as luminance box.

※ When using luminance box (L-222 or L-223), set it at EV 11, and use a ND filter (MINOLTA ND 50% FOR ADJUSTMENT).

2. Adjust and check as follows:

Step	Luminance	Shutter speed adjustment	EE level allowable range	Part adjusted	Indication allowable range ($\pm 0.5\text{EV}$)			
1	EV 10	34 ms	—	VR ₆ (Fig. 2)	1/60			
					1/30			
					1/15			
2	EV 15	—	$\pm 0.4\text{EV}$	(Check only)				

■ Fig. 2



■ Check and adjustment of release lock voltage and LED blink voltage

■ Check

① Release lock voltage	Standard	$2.46 \pm 0.1 \text{ V}$
② LED blink voltage	Standard	$2.56 \pm 0.1 \text{ V}$

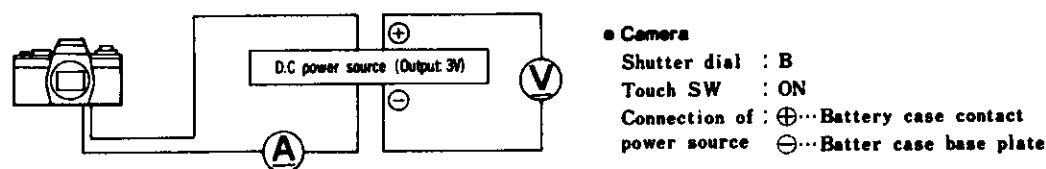
• In case of out of standard above, adjust those as following procedure.

■ Measuring instruments : Constant voltage D.C power source (MODEL 524B, E-1, E-2)
: Digital multimeter (Type 2508, 3476, 2507)
: Direct current tester

■ Checking procedure

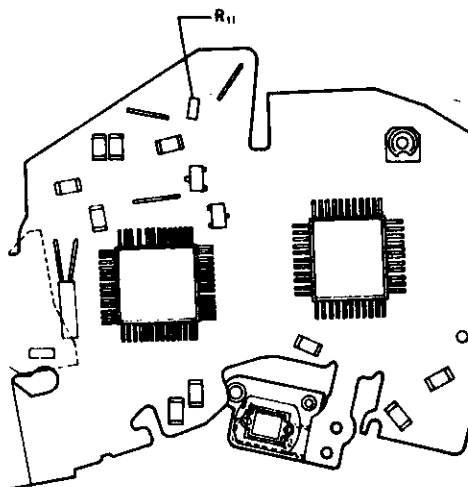
1. Check the current consumption at B setting (incl'd * indication) using measuring instruments as follows.

■ Fig. 1



2. Measure the release lock voltage while reducing slowly the voltage of D.C power source from 3V.
3. In case of out of standard, replace R_{11} (68-390K Ω).

■ Fig. 2



■ Checking high and low shutter speed limits

■ Measuring instrument : Shutter tester (Model S-2101, FS-1DMN4)

- ① High shutter speed limit (shutter speeds in other than high luminance operation in A mode.)

• Check the shutter speed with the shutter dial set to A.

Standard	0.69~1.38 ms
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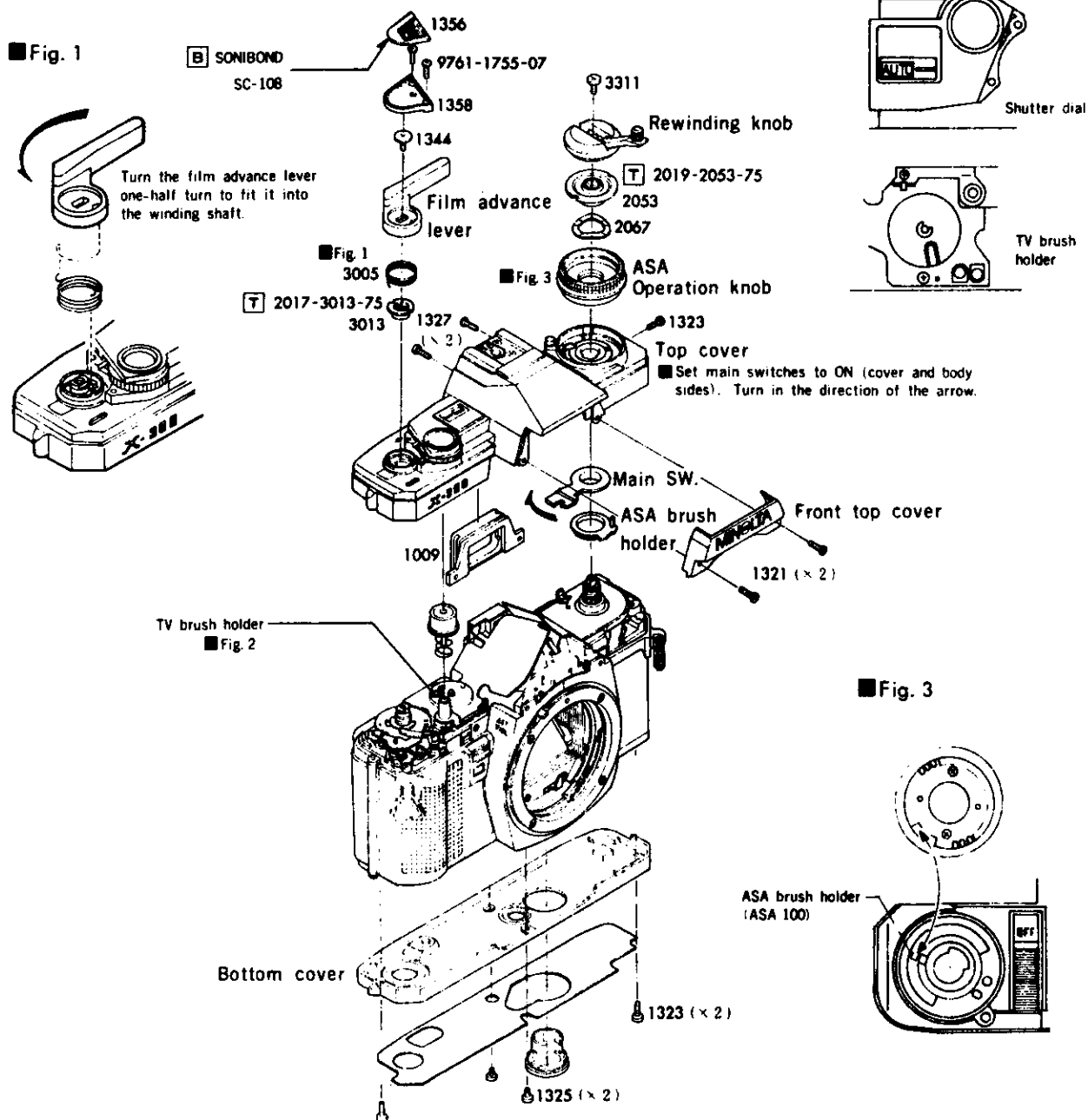
- ② Low shutter speed limit (shutter speeds in other than low luminance operation in A mode.)

• Set the shutter dial to A, and then check the exposure time with light to the receiver interrupted.

Standard	Within 5 sec.
----------	---------------

External parts (completion)

■ Fig. 2 TV brush holder position



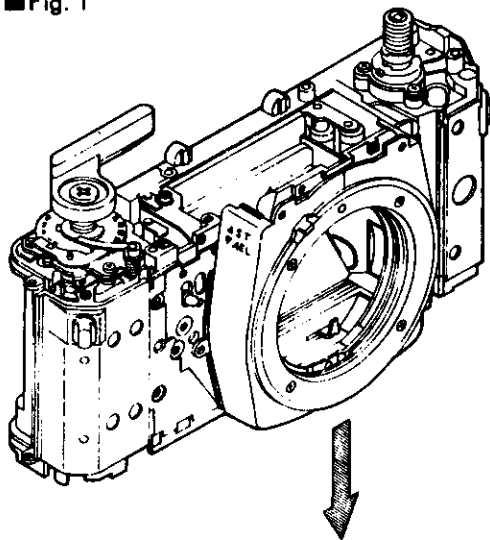
■ Shutter block adjustment

- Measuring instruments : Camera standard tester (Model ST-5101)
: Shutter tester (Model S-2101, FS-1DMN4)

■ Preparations

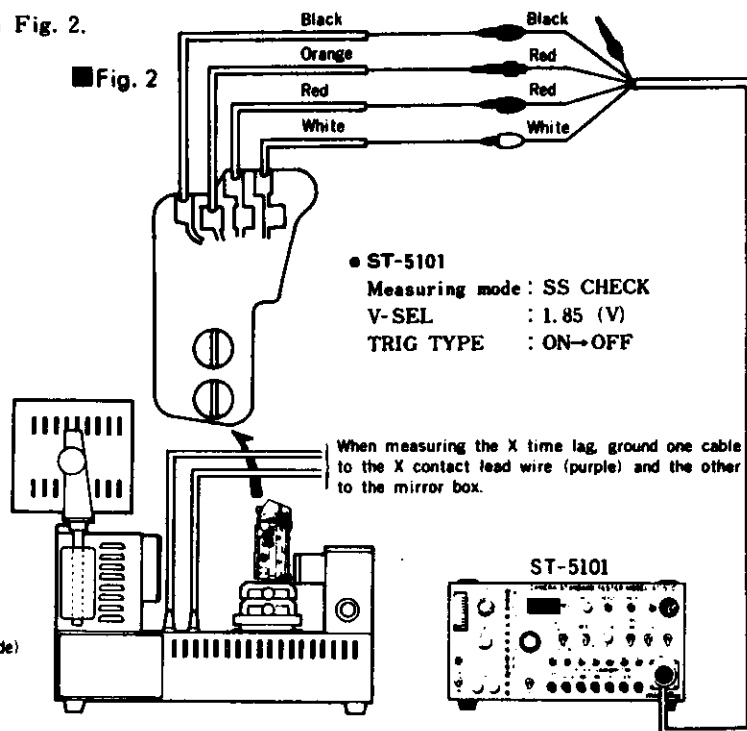
1. Mount the shutter onto the front base plate block and install it onto the body (as shown in Fig. 1).
2. Connect the tester as shown in Fig. 2.

■ Fig. 1



Operate the shutter as described on P. 15. (2024 Repair Guide)

■ Fig. 2



■ Adjustment procedure

① Curtain speed adjustment

1. Set the SS-SEL of ST-5101 to 1000 and adjust by turning the curtain spring cylinder shaft so that both curtain speeds are $11 \pm 0.3 \text{ ms}$. (Fig. 3)
 - When the curtain is not open, shift SS-SEL to 60 and make a rough adjustment beforehand so that both curtain speeds are about 12ms, and then adjust again with the SS-SEL set to 1000.

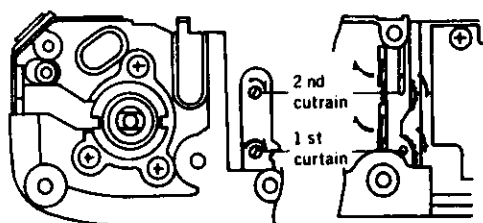
② Shutter speed adjustment

1. With the SS-SEL set to 1000, release the shutter and adjust by turning the S_2 eccentric pin so that the shutter tester indicates 0.98 ms . (Fig. 4)

③ X time lag adjustment

1. Connect the synchro cord of the shutter tester to the camera. (Fig. 2)
2. With the SS-SEL set to 60, release the shutter and check to be sure that the speed is 0.4 ms or more in range A and 2.4 ms or more in range B.
To make the adjustment, bend the end of the X contact.

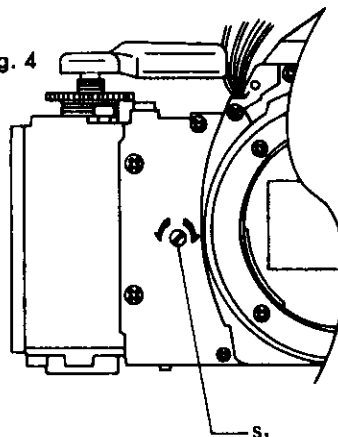
■ Fig. 3



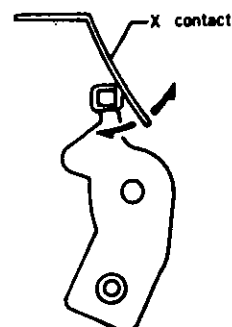
• Increasing the curtain speed

• Decreasing the curtain speed

■ Fig. 4



■ Fig. 5



TROUBLE-SHOOTING

1. Use of Trouble-shooting

1. This trouble-shooting chart describes symptoms and causes of troubles found on the camera side.
2. Even when trouble is found on the camera side, its cause is not always attributable to the malfunction of the camera in relation to the exchangeable lens, winder, motor drive and exclusive flash. Therefore, use this trouble-shooting chart upon confirmation of trouble on the camera after checking combined performance with the accessories according to claim contents.

2. Description

1. Trouble described here is due to a single case only. Trouble due to a plurality of causes should be checked collectively on the basis of the causes listed in this chart.
2. This trouble-shooting deals mainly with electrical causes, as well as covering part of mechanical causes.

3. Servicing Precautions

1. Type 2507 digital multimeter is basically used for measurement. Any other kind of measuring instrument, however, may be used, if its minimum input impedance is more than $10M\Omega$.
2. Use this tester for voltage checks and a tester of less than 3V for measuring conduction.
3. Trouble is most unlikely to occur in electronic parts, such as ICs, diodes, transistors, resistors, and capacitors. Therefore, check the cause of trouble, with the focus on the defective soldering of lead wires and electrical parts, and switching contacts.
4. When checking soldered or plated parts, avoid pressing the parts or pulling lead wires unnecessarily.
5. Since voltage measuring parts are narrow, mount a pin or something similar at the tip of an alligator clip for measurement.
6. When measuring switching patterns, special care should be taken so that the patterns outside switch operation are free from flaws. For switch contacts, measure their base, which is not directly affected by contact pressure.
7. Be sure to turn off the power switch before removing electrical parts (when a constant-voltage regulated power supply is used).
8. The ideal temperature range for the soldering iron tip is 290°C to 340°C . If the temperature is higher, however, perform soldering quickly. Also, be sure to clean the chip when soldering.

4. Description on Trouble-shooting Table and Trouble-shooting Chart

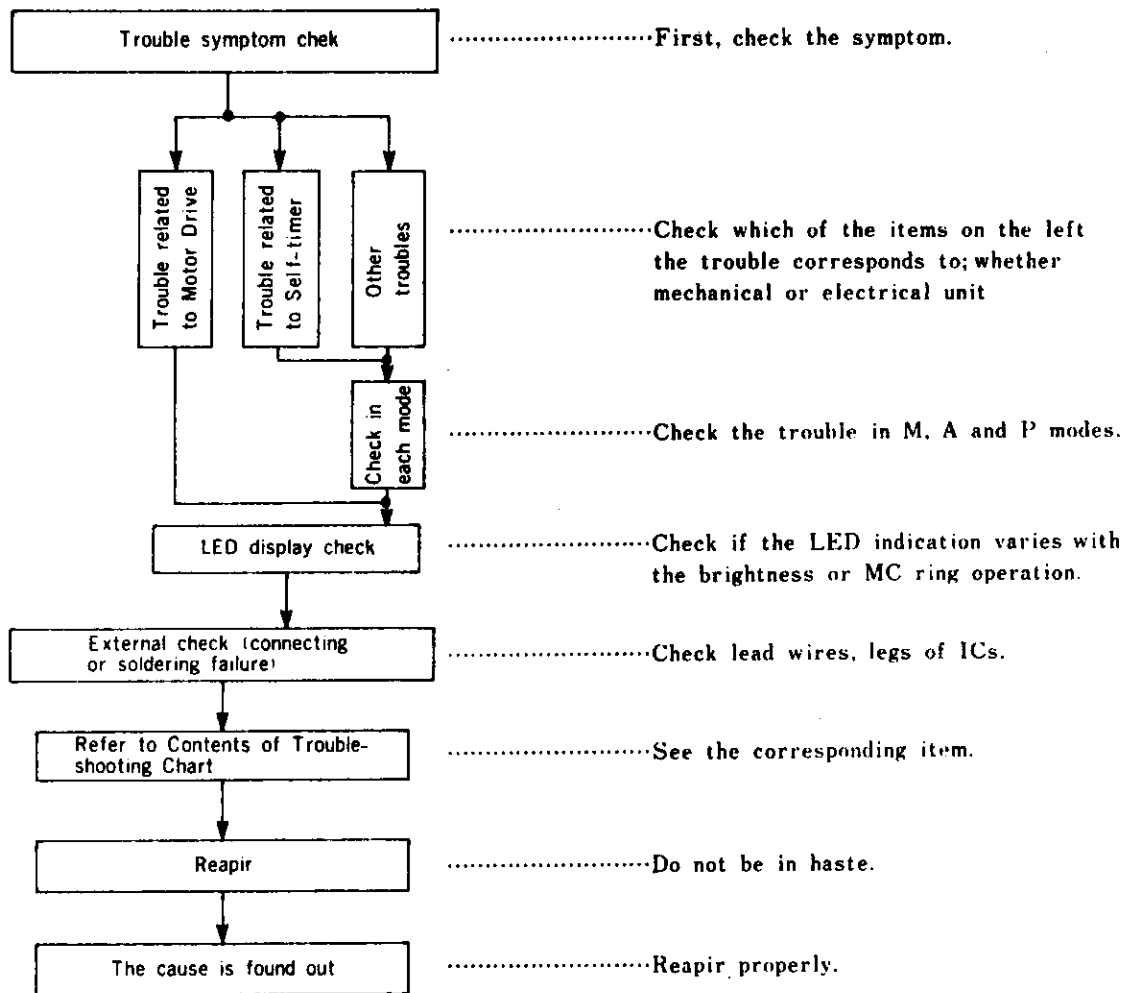
4-1. Trouble-shooting Table

1. From symptom, trouble cause can be found.
2. The Trouble-shooting Table combines the "INDEX" and summary of details of "Trouble-shooting Chart".
Accordingly, use those properly as the needs of the case demand.

4-2. Trouble-shooting Chart

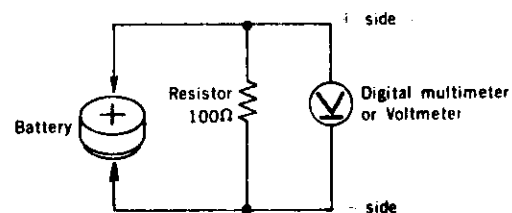
1. The chart presents the checkpoints to be followed from the symptom to finding the cause of trouble.
2. The voltage for each checkpoint is the value when SW_0 or SW_1 is ON upon completion of film winding (before releasing). It is a potential difference from \rightarrow of power supply.
3. For all trouble symptoms other than "Electromagnetic release does not operate," check their cause, assuming that the electromagnetic release operates properly.
4. The chart shows the check in the ☐ is done by operation and in the ☐ by measurement.

5. Repair procedure



6. Battery Capacity Check

1. A 100Ω resistor is paralleled with the battery at normal temperature ($25 \pm 25^\circ\text{C}$), as illustrated. A digital multimeter or voltmeter is connected to the battery in parallel to the resistor to measure the voltage. In this case, be sure to perform quick measurement.
2. The battery, with its voltage more than 1.4 V, is regarded as normal.



for Trouble-shooting Table/Chart

■ Trouble related mechanism (Winding and

- ☐ **A** Returning winding lever to original position after winding completion, shutter curtains return to position of shutter released.

Trouble related electro unit

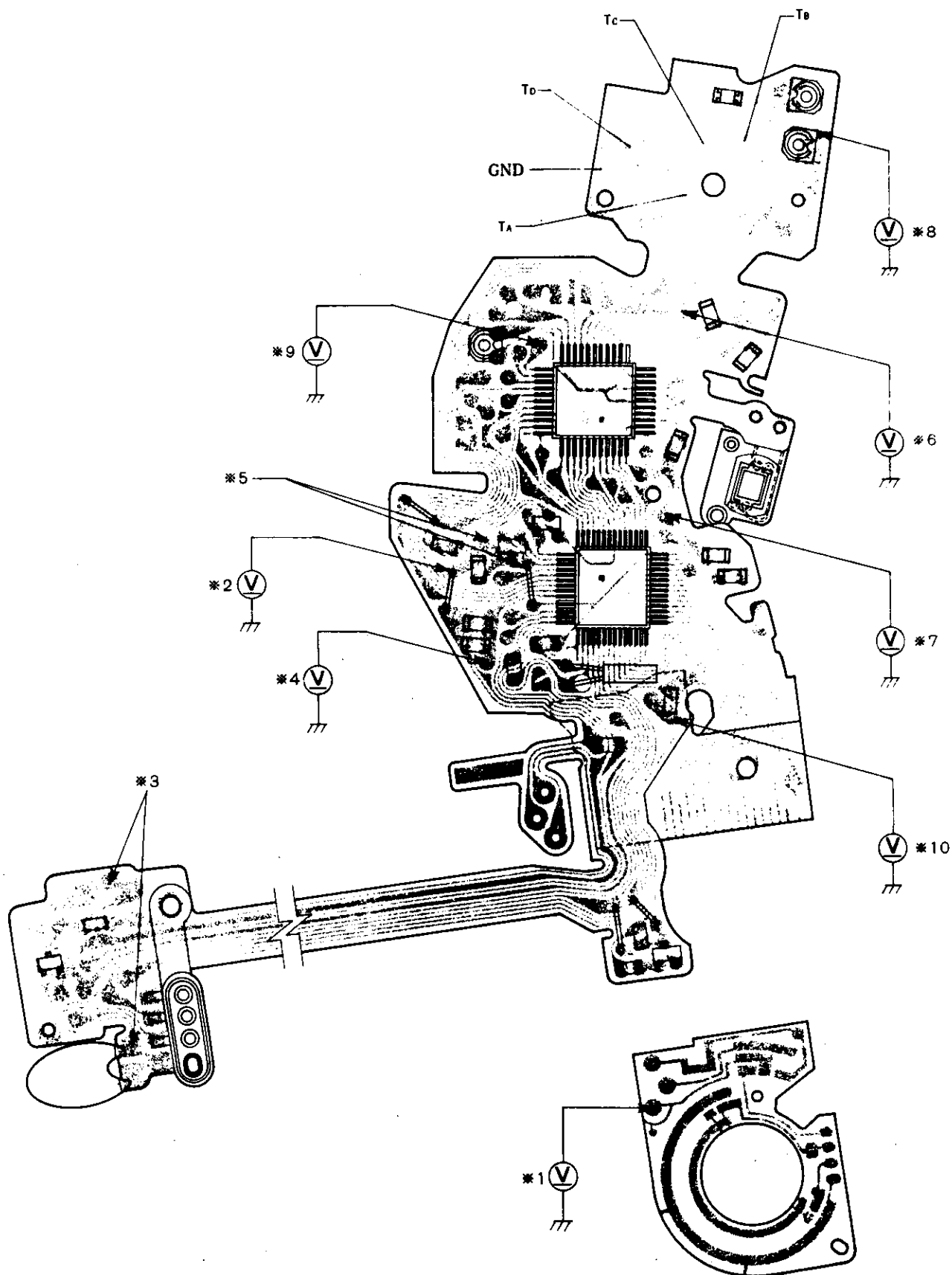
[illegible]

★ Explanation of Trouble-shooting Table

1. _____ of number of SW, or Lead Wire shows.....Shortcircuit with GND.
(e.g. SW-④).....Shortcircuit SW, and GND.
2. _____ of IC or Others shows shortcircuit between.....IC pins.
* Joint part and printed wiring.
3. _____ of others shows.....Shortcircuit IC, 40 and 41
SPC (A-X).....Shortcircuit SPC anode and cathode.
4. _____ of others shows.....Shortcircuit by elements failure.
For SW.....Contact failure.
Others.....Cold soldering or disconnection.

[illegible]

[illegible]

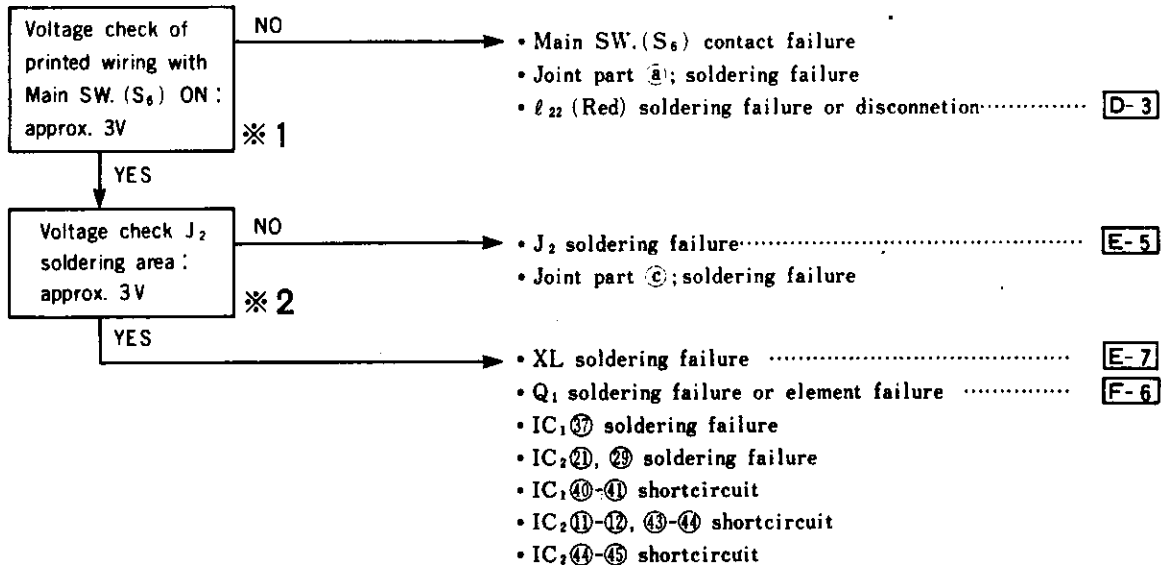


■ Trouble related to electro unit

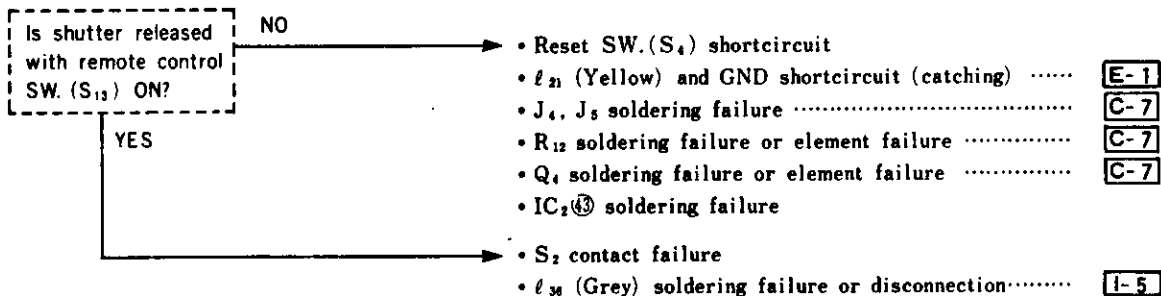
- ※1~※10 show the check point on the diagram left.
- **A-6** or the like on the right shows the position (coordinate) on the schematic wiring diagram (P. 21).

A Shutter release failure

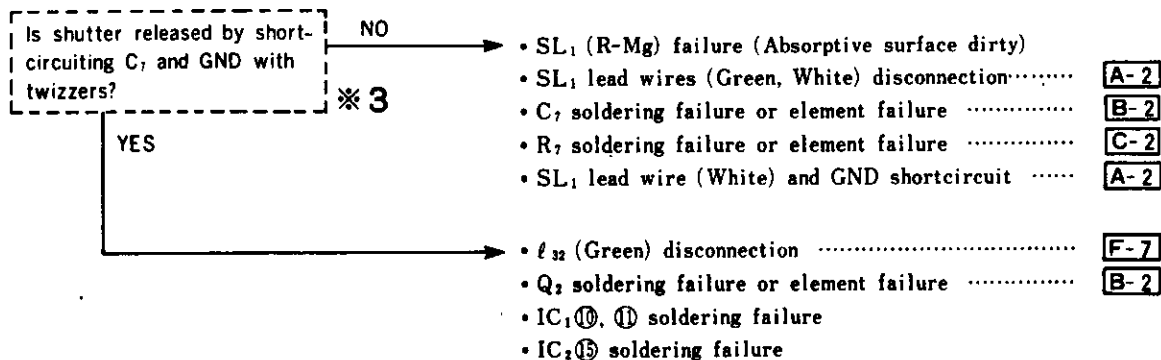
- ① No LEDs light, shutter is not released...Release impossible even with Main SW. (S₆) ON→OFF→ON operation.



- ② LEDs remain light, and shutter is not released with release SW. (S₂) ON.....
(Release impossible even with Main SW. (S₆) ON→OFF→ON operation.)



- ③ With release SW. (S₂) ON, LEDs go out, but shutter is not released.....
(Release impossible, and LEDs light with Main SW. (S₆) ON→OFF→ON operation.)



4] Shutter is not released with remote control SW. (S₁₃) ON

.....(Release possible with operating button operation.)

- ℓ_{10} (Grey) soldering failure or disconnection **D-4**
- ℓ_{30} (Black) soldering failure or disconnection **D-4**

5] Shutter is not released even though self-timer LED lights with metering SW. (S₈ or S₁) ON

.....No finder LEDs light.

- J₁ soldering failure **F-5**
- IC₁ ② soldering failure

6] Main SW. (S₄) ON makes shortcircuit, resulting in shutter release impossible and no lighting LEDs.

- The joint parts ①-③ shortcircuit
- ℓ_{13} (Red) and GND shortcircuit **K-5**

7] Main SW. (S₄) and metering SW. (S₈ or S₁) ON make shortcircuit, resulting in release impossible and no LEDs lighting.

- R₉ shortcircuit **E-5**
- C₄ shortcircuit **E-5**

8] After shutter releasing with Main SW. (S₄) ON→OFF→ON, release impossible and no LEDs light.

Normal shutter speed when releasing

- Reset SW. (S₄) contact; contact failure
- ℓ_{21} (Yellow) soldering failure or disconnection **E-1**
- IC₂ ② soldering failure

Shutter curtains travel without slit when releasing.

- IC₂ ④⑤-④⑥ shortcircuit

9] Shutter is released when winding up.

- Release SW. (S₂) shortcircuit
- ℓ_{10} (Grey) and GND shortcircuit **D-4**
- SL-1 (R-Mg): defective (attraction failure)
- ℓ_{36} (Grey) and GND shortcircuit **I-5**
- Remote control terminal shortcircuit

10] LEDs light and, shutter release is impossible with Main SW. (S₄) OFF.

- Joint parts ①-③ shortcircuit

11] Shutter is released only once, after turning main switch ON

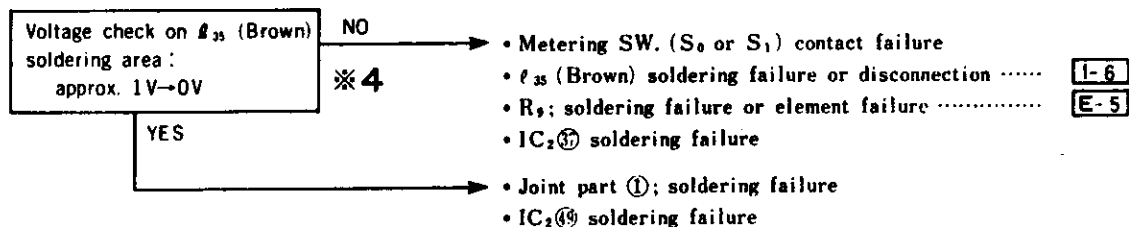
(when slower shutter speed LED 1/30-1 sec glows).

- SL-2 (S-Mg) shortcircuit
- C₂ shortcircuit **E-5**

B Finder indication failure

1 No LEDs light with metering SW. (S₀ or S₁) ON

.....(Shutter operates normally.)

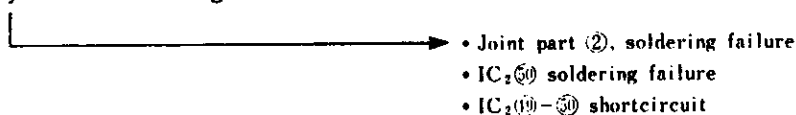


2 No LEDs light with metering SW. (S₀ or S₁) ON

.....Shutter stays open with self-timer LED ON when released.



3 Only "M" does not light.

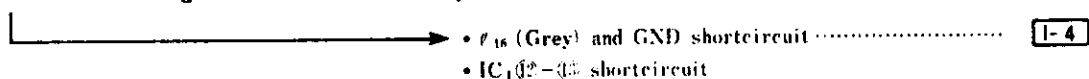


4 Part of LEDs does not light.

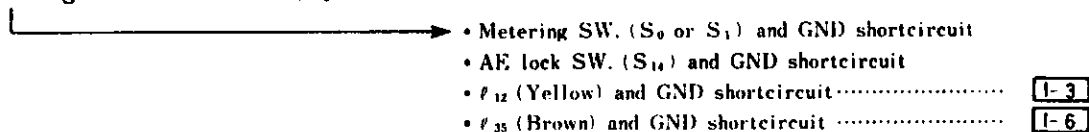
Check soldering failure of IC₂, flexible P.C board...joint part referring to the table below.

Finder LED	M	A	△	1000	500	250	125	60	30	15	8	4	2	1	▽	B
IC ₂ pin No.	⑩	⑪	⑫	⑬	⑭	⑮	⑯	⑰	⑱	⑲	⑳	㉑	㉒	㉓	㉔	㉕
Joint part No.	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17

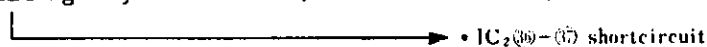
5 Self-timer LED lights with Main SW. (S₀) ON.



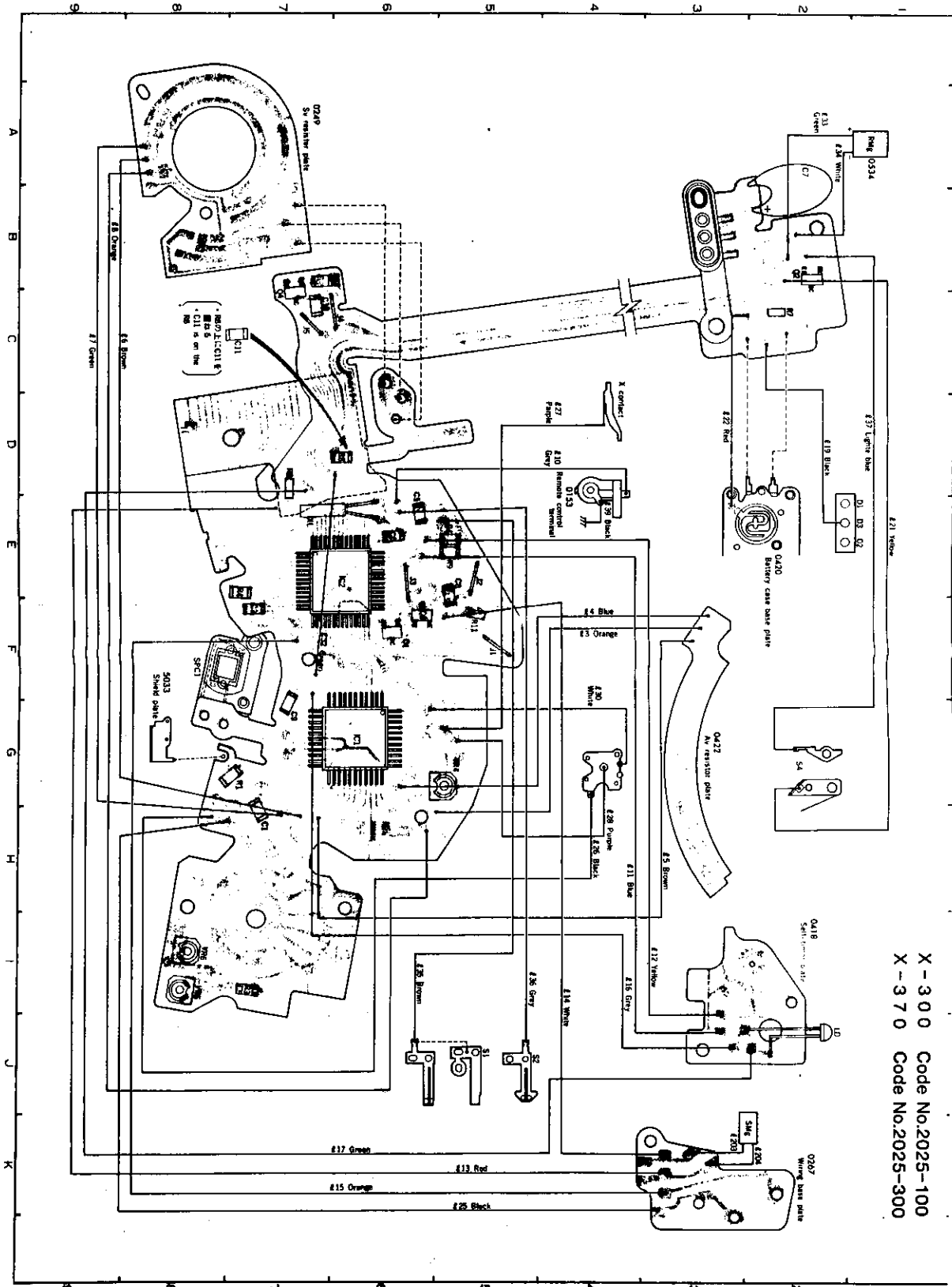
6 LEDs light with Main SW. (S₀) ON.



7 LEDs light by Main SW. (S₀) ON with shutter speed dial set at 30~1000 or A.



X - 3 0 0 Code No.2025-100
 X - 3 7 0 Code No.2025-300



⑧ When voltage is under specified B.C voltage, shutter release lock does not operate with LEDs ON.....No mode LED blinks.

- IC₁ ③ soldering failure
- IC₂ ②③ soldering failure

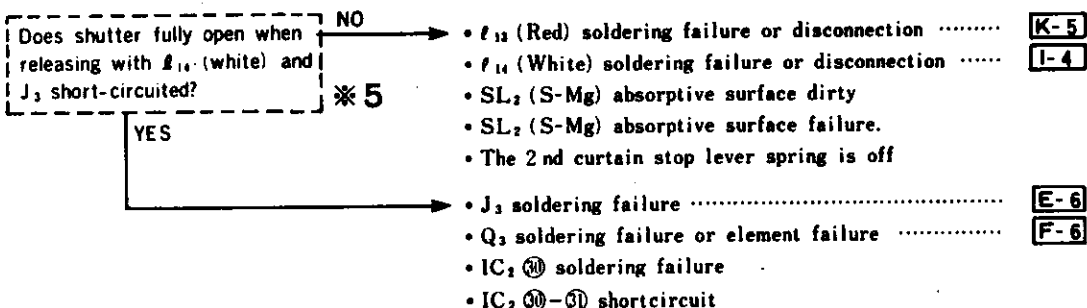
⑨ When decreasing voltage, mode LED remains ON; does not blink
.....No LEDs light when release locked.

- IC₁ ② soldering failure
- IC₂ ④ soldering failure

C Shutter failure

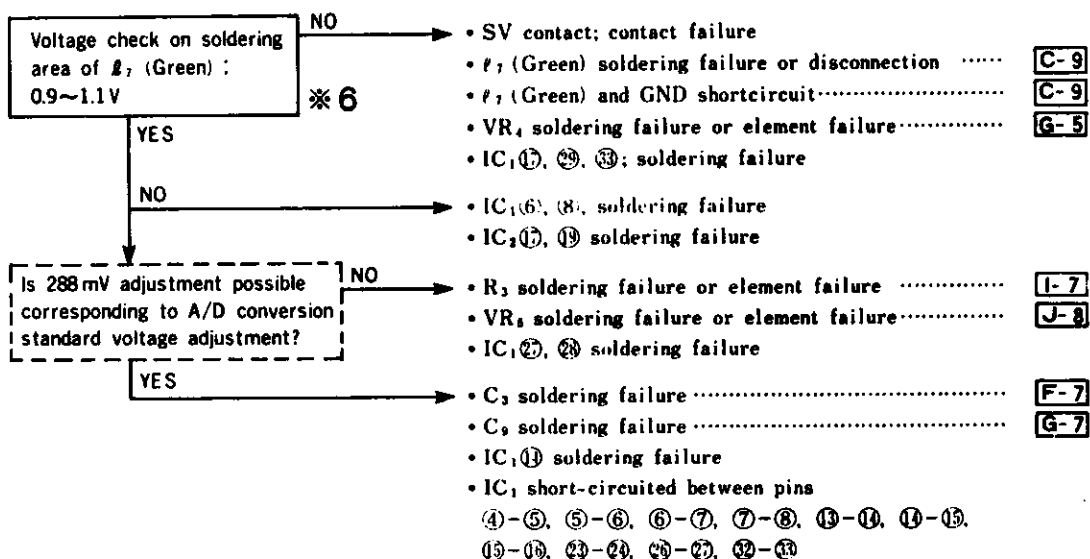
C-1 Shutter curtains travel in high speed, or without slit

① LED indication is normal. Shutter curtains travel without slit in M and A modes.



② In A mode shutter operates in high speed with Δ blinking.

(1) LED indication remains the same when changing AV, film speed and luminance.



(2) LED indication remains the same only when changing AV

.....Check by rotating aperture ring.

- ℓ_3 (Orange) soldering failure or disconnection
- MC brush deformed (Printed wiring short-circuited)

F-4

(3) LED indication remains the same only when film speed changing

.....Check by rotating film speed ring.

- ℓ_6 (Brown) soldering failure or disconnection

C-8

(4) LED indication does not change in accordance with luminance

.....Check by changing luminance.

- SPC₁ A and K shortcircuit
- IC₁ ⑪-⑫ shortcircuit

F-8

(3) LEDs are normal. In M and A modes shutter curtains travel without slit when set to high speed.Normal at slow speed

- Trigger SW. (S₃) contact failure
- ℓ_{15} (Orange) soldering failure or disconnection
- ℓ_{15} (Orange) connected to the next printed wiring (IC₂ ⑬) by mistake

K-6

K-6

4 In A and M modes, shutter speed remains 1/60 with LEDs "M" and "1/60" lighting.

- Looseness of earth plate (2023-4002) screw on TV P.C board.
- GND contact at TV SW.; contact failure

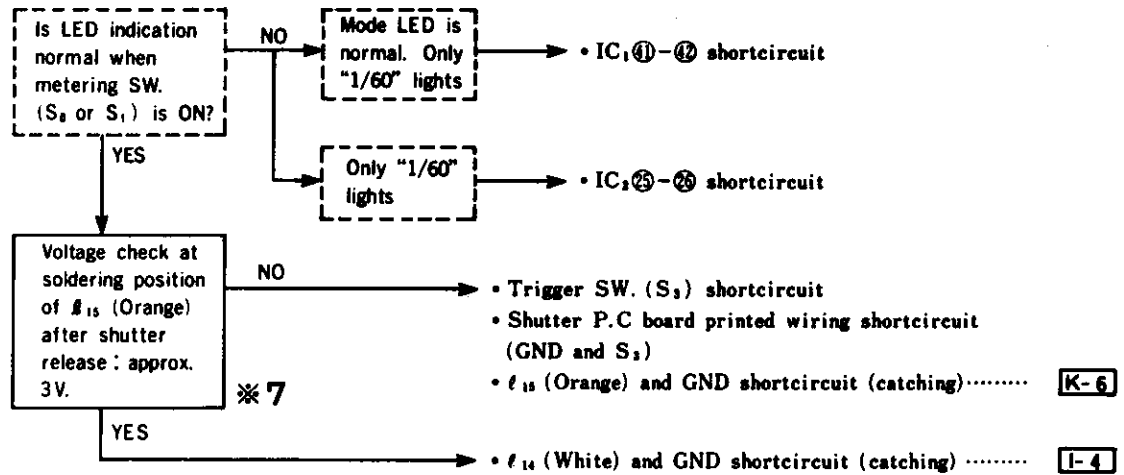
5 LED indication is normal. Occasional high shutter speed under darkness.

- IC₁ ⑦ soldering failure
- IC₂ ⑱ soldering failure

C-2 Shutter remains open

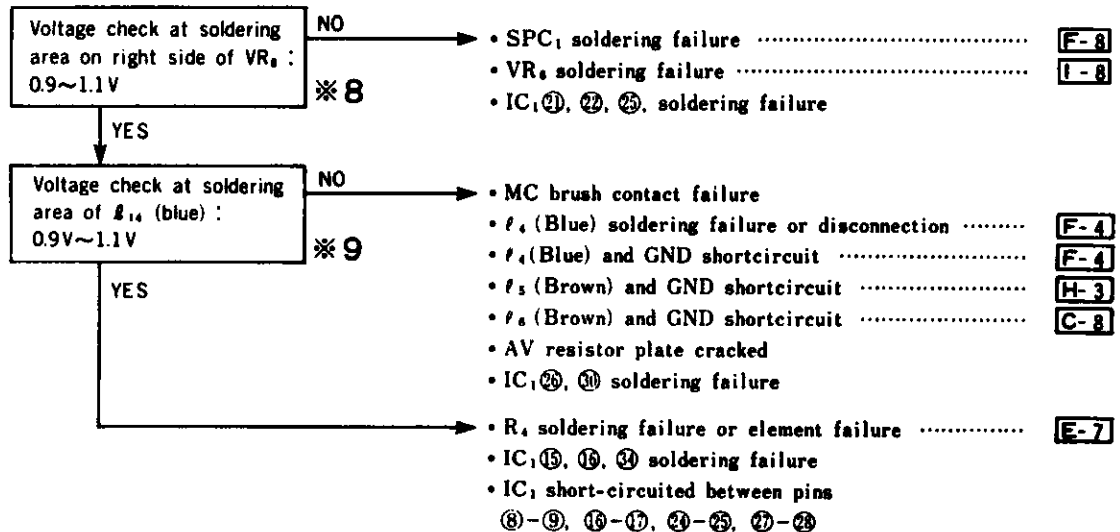
① LED indication is normal. Shutter stays open in M and A modes

.....Slow shutter speed limit, 4 sec., does not operate.



② In A mode, shutter stays open with ▽ blinking

(1) LED indication remains the same when AV, film speed, and luminance changing.



(2) LED indication remains the same only when changing AV

.....Check by rotating aperture ring.



C-3 Others

① In A mode, LED indication and shutter speed operate as slow shutter speed

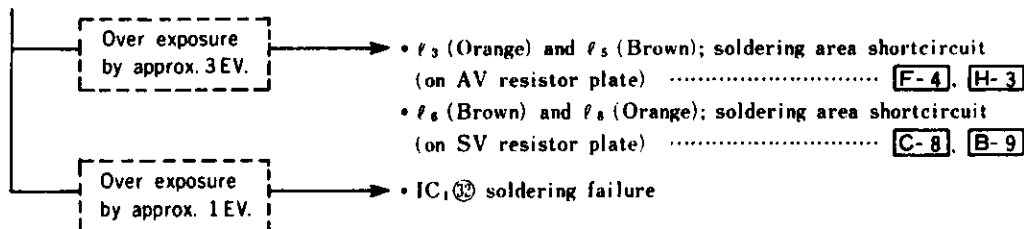
.....Over exposure.

(1) LEDs and shutter speed remain the same only when film speed changing

.....Check by turning film-speed ring.

- ℓ_5 (Orange) soldering failure or disconnection
- ℓ_3 (Orange) and ℓ_4 (Blue); soldering area shortcircuit
(on AV resistor plate) **F-4**, **G-4**
- ℓ_6 (Brown) and ℓ_7 (Green); soldering area shortcircuit
(on SV resistor plate) **C-8**, **B-9**
- Deformed brush on SV resistor plate
(printed wiring shortcircuit)
- IC₁ ②⑨-③⑩ shortcircuit

(2) LEDs and shutter speed remain the same when AV and film speed changing.



② In M mode, shutter does not operate in accordance with speed set by shutter speed dial

.....LEDs indicate operating shutter speed.

- Check if brush is deformed on TV SW.
- By turning shutter speed dial, check voltage of printed wiring (T_A~T_D) or voltage IC₂ ③③~③⑥. Then compare to the table below.

Shutter speed setting and corresponding voltage on printed wiring in normal condition.

Shutter speed and LED indication	Voltage of printed wiring on TV P.C board			
	T _A IC ₂ ③③	T _B IC ₂ ③④	T _C IC ₂ ③⑤	T _D IC ₂ ③⑥
M 1000	3.0	3.0	0	0
M 500	3.0	0	0	0
M 250	3.0	0	3.0	0
M 125	0	0	3.0	0
M 60	0	3.0	3.0	0
M 30	0	3.0	0	0
M 15	0	3.0	0	3.0
M 8	3.0	3.0	0	3.0
M 4	3.0	0	0	3.0
M 2	0	0	0	3.0
M 1	0	0	3.0	3.0
B	0	3.0	3.0	3.0
A	3.0	3.0	3.0	0

- By brush contact failure on TV SW, the voltage becomes 3.0 V resulting in different shutter speed and LED indication.
- Replace flexible P.C board set with new one, when shutter is failure with voltage within the range.

3 Excessive deflection of LED indication and shutter speed from AV and film speed setting.

- ℓ_3 (Orange) and GND shortcircuit **F-4**
- ℓ_8 (Orange) and GND shortcircuit **B-9**

D Self-timer failure

[1] Shutter release without delay

.....No self-timer LED blinks.

- Self-timer SW. (S₁₀) contact failure
- ℓ_{11} (Blue) soldering failure or disconnection **H-4**
- Looseness of self-timer plate screw
- IC₂(10) soldering failure

[2] Shutter release without delay

.....Self-timer LED blinks after shutter release.

- IC₁(9)-(10) shortcircuit
- IC₂(15)-(16) shortcircuit

[3] Shutter release with delay for 10-sec

.....No self-timer LED blinks.

Voltage check at soldering
area of ℓ_{17} (Green) :
approx. 3.0V

NO

※ 10

- R₆ soldering failure or element failure **D-7**
- Shortcircuit between self-timer LED (anode) and GND

YES

- ℓ_{16} (Grey) soldering failure or disconnection **I-4**
- ℓ_{17} (Green) soldering failure or disconnection **K-6**
- LD₁₇ (self-timer LED) failure
- IC₁(9), (12) soldering failure
- IC₂(16) soldering failure

[4] Shutter release impossible with self-timer

.....Self-timer LED does not blink.

- IC₁(13) soldering failure

[5] Shutter operates in high speed with self-timer in A mode.

- IC₁(8)-(9) shortcircuit
- IC₂(15)-(17) shortcircuit

[6] Shutter release with delay for 10-sec., locking AE.

- Self-timer plate printed wiring shortcircuit
- IC₂(10)-(11) shortcircuit

[7] Self-timer operates always.

- Self-timer SW. (S₁₀) deformation.
(Shortcircuit between GND and printed wiring)
- ℓ_{11} (Blue) and GND shortcircuit (catching) **H-4**

E AE lock failure

① AE lock does not operate.

- • AE lock SW. (S₁₄) contact failure
- ℓ_{12} (Blue) soldering failure or disconnection **1-3**
- Looseness of self-timer plate screw
- IC₂④; soldering failure

② AE lock operates always.

- • AE lock SW. (S₁₄) deformation
(Shortcircuit between GND and printed wiring)
- ℓ_{12} (Yellow) and GND shortcircuit (catching) **1-3**

③ AE lock operates only after shutter release

-Shutter release is impossible with AE lock SW. locked.
- • IC₂④-② shortcircuit

F Flash firing failure. (Check in A mode using AEF 200X)

[1] LED indication is normal with flash fully charged. But flash does not fire properly.

(1) Flash does not fire. Shutter stays open.

- X contact (SX₂); contact failure
- F₁ terminal contact failure
- ℓ_{27} (Purple) soldering failure or disconnection **D-4**
- ℓ_{28} (Purple) soldering failure or disconnection **H-4**

[2] LED indication failure with flash fully charged.

(1) "1/60" does not blink. Metered shutter speed LEDs light on. Shutter does not operate as Auto X.

- F₂ terminal contact failure
- ℓ_{30} (White) soldering failure or disconnection **F-4**
- ℓ_{30} (White) and GND shortcircuit (catching) **F-4**
- IC₁ ①, ④ soldering failure
- IC₂ ② soldering failure

(2) "1/60" does not blink; remains ON. Flash fires with shutter operated as Auto X.

- IC₁ ④ soldering failure
- IC₂ ② soldering failure

(3) "1/60" does not blink. Metered shutter speed LEDs blink. Firing without shutter operated as Auto X.

- IC₁ ④ soldering failure
- IC₂ ② soldering failure

(4) LEDs of metered shutter speed and 1/60 blink, and flash does not fire.

- Ground is not connected at hot shoe
- ℓ_{25} (Black) soldering failure or disconnection **K-5**
- ℓ_{26} (Black) soldering failure or disconnection **H-4**

(5) "1/60" does not blink. Metered shutter speed LEDs light on. Shutter does not operate as Auto X. Monitor lamp of flash unit will not light up.)

- X contact (SX₂) shortcircuit
- ℓ_{27} (Pink) and GND shortcircuit (catching) **D-4**
- ℓ_{28} (Pink) and GND shortcircuit (catching) **H-4**


(6) LEDs do not light up at all. Shutter operates as Auto X, and flash fires.

- IC₁ ③-④ shortcircuit


(7) When pressing AE lock button after 1/60 blinks, metered shutter speed LED blinks. Shutter operates at metered shutter speed, and flash fires.

- IC₂ ③ soldering failure


G] Failure with Motor Drive using**[1] Winding is impossible by motor drive.**

- 
- W₃ contact failure
 - W₃ riveting failure or soldering failure
 - IC₂ ④ soldering failure

[2] No LEDs light with metering SW. ON of Motor Drive.

- 
- W₁ contact failure
 - W₁ riveting failure or soldering failure
 - IC₂ ④ soldering failure

[3] Shutter is not released by Motor Drive.

- 
- W₂ contact failure
 - W₂ riveting failure or soldering failure

■ Trouble related mechanism

(Winding and shutter releasing are impossible).

A. Returning winding lever to original position after winding completion, shutter curtains return to position of shutter released.

- Under-charge → Adjust the shutter charge following 2024 Service Manual Repair Guide P.16.
- Looseness of winding shaft riveting (0338) → Replace winding shaft.

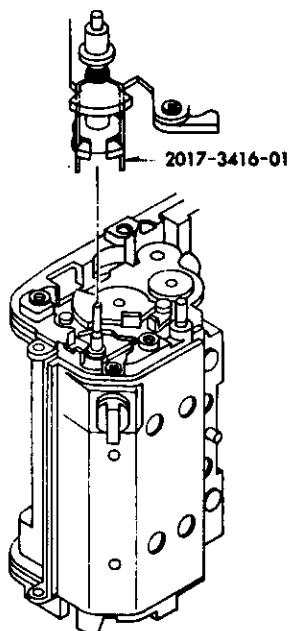
B. Charge operation plate set does not return at winding completed.

- Winding operation lever Clean the winding operation lever and the holder. Fig. 1
does not work properly. Adjust the spring (3416) shape or replace it.
- (Stiff
Disconnection of SP.
Deformation of SP.)

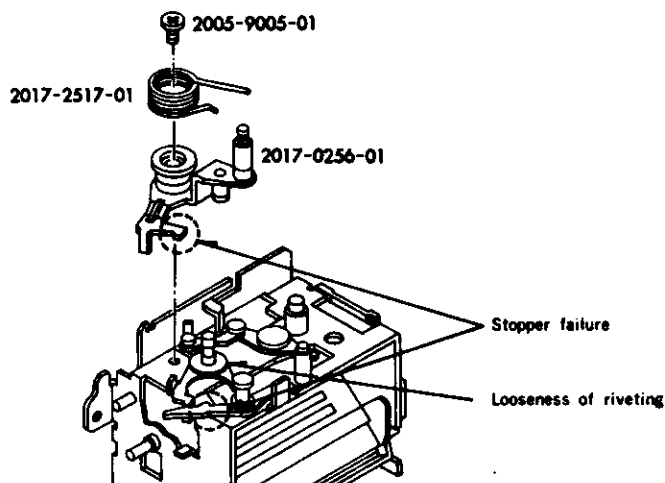
C. Others

- Charge lever bent. → Adjust or replace.
- Disconnection of charge lever from charge roller. → Adjust or replace the charge lever and charge roller.
- Disengagement of mirror holder rivet. → Replace the mirror holder. (Adjust and check the mirror angle)
- Foreign particle on the mirror holder.
- MP return lever set (0256) stopper failure. } Fig. 2
- Looseness of MP return lever riveting shaft. }

■ Fig. 1

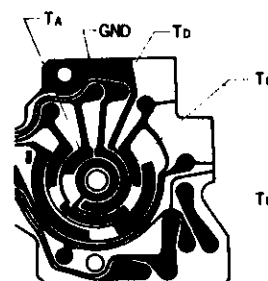
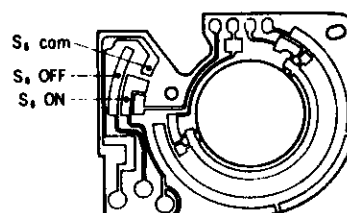
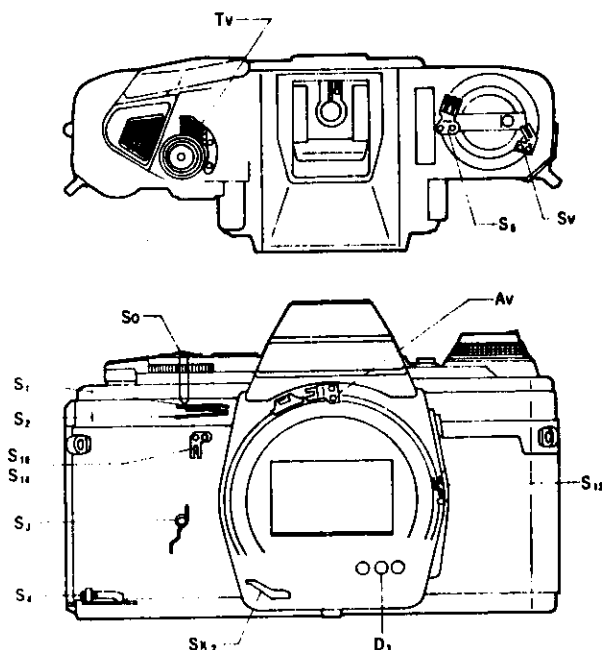


■ Fig. 2



■ Operation of switches

Mark	Name	Function	Condition of operation
S ₀	Touch switch	Setting metering and calculating circuit to ON, lighting finder LEDs.	ON by touching operating button.
S ₁	Metering switch	The same as S ₀ .	ON by depressing operating button.
S ₂	Release switch	Starting of circuits operating.	
S ₃	Trigger switch	Counting start of exposure time with OFF.	OFF right after shutter operation start.
S ₄	Reset switch	<ul style="list-style-type: none"> ● Prevention against error during winding. ● Reset of circuit. ● Control of motor drive. 	OFF with winding completed. ON with preset mech. returning after 2nd curtain travelled.
S ₄	Main switch	<ul style="list-style-type: none"> ● ON/OFF of circuit power source. ● Power supplying. 	Operating of main switch lever.
S ₁₀	Self-timer switch	Setting circuit components to self-timer mode.	ON by pulling up self-timer lever.
S ₁₃	Remote control switch	The same as S ₁ .	
S ₁₄	AE lock switch	<ul style="list-style-type: none"> ● Holding of exposure value and indication. ● Slow synchronization using exclusive flash. 	ON by pushing the self-timer lever down.
Sx ₁	X contact	Firing of flash.	ON with 1st curtain travelled completely. OFF with 2nd curtain travelled completely.
T _A / T _D	TV switch	<ul style="list-style-type: none"> ● Circuit changing of A, M, B, mode. ● LED light changing of A, M, B mode. 	By turning shutter speed dial.



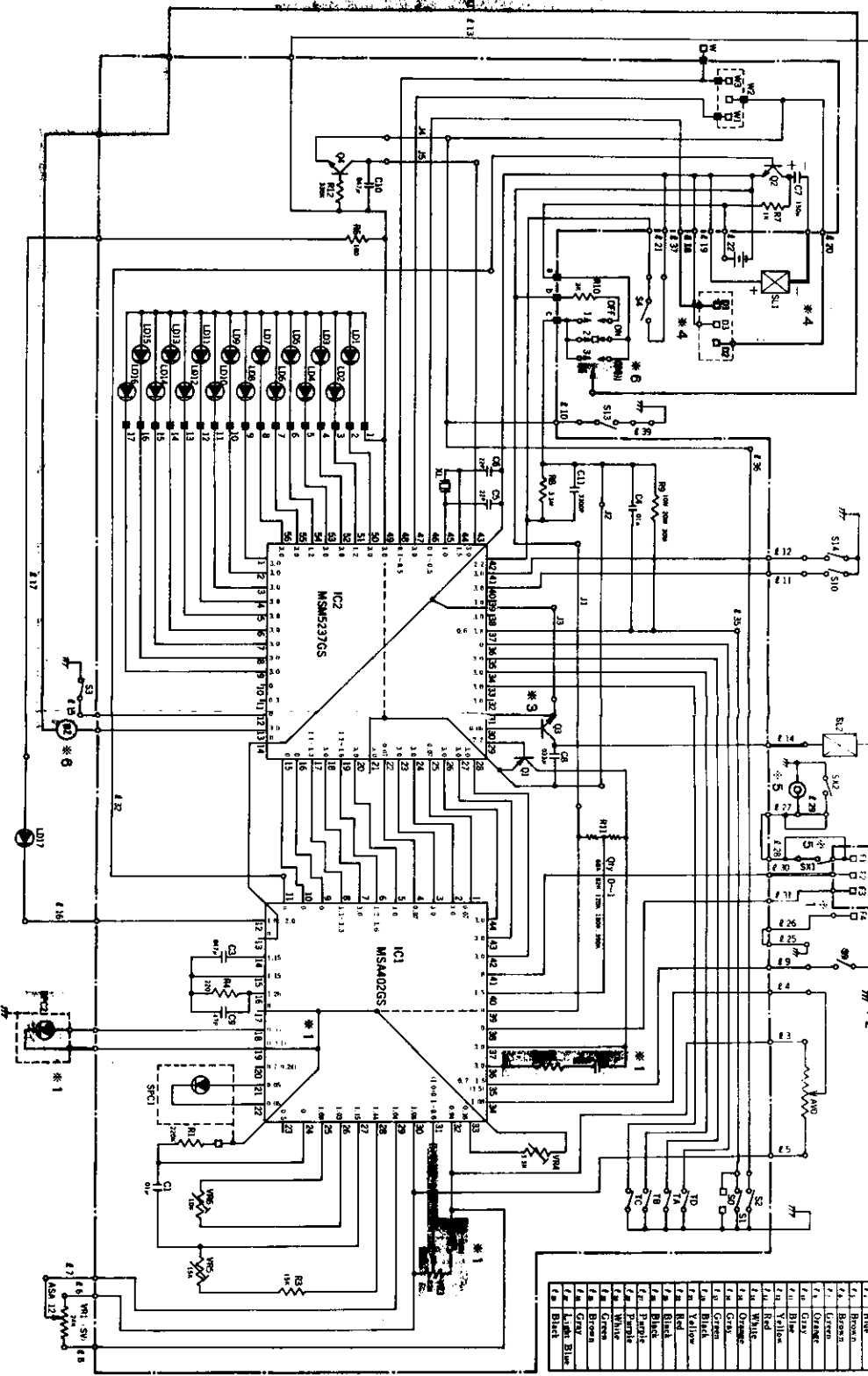
X-370 Substantial Circuit Diagram

Circuit provided with shows the exclusive employing of exclusive circuit for X-300-370 present circuit.

Explanations of this circuit in continuity and employing of exclusive circuit for X-300-370 are given on p. 35.

Soldering is to be done with care.

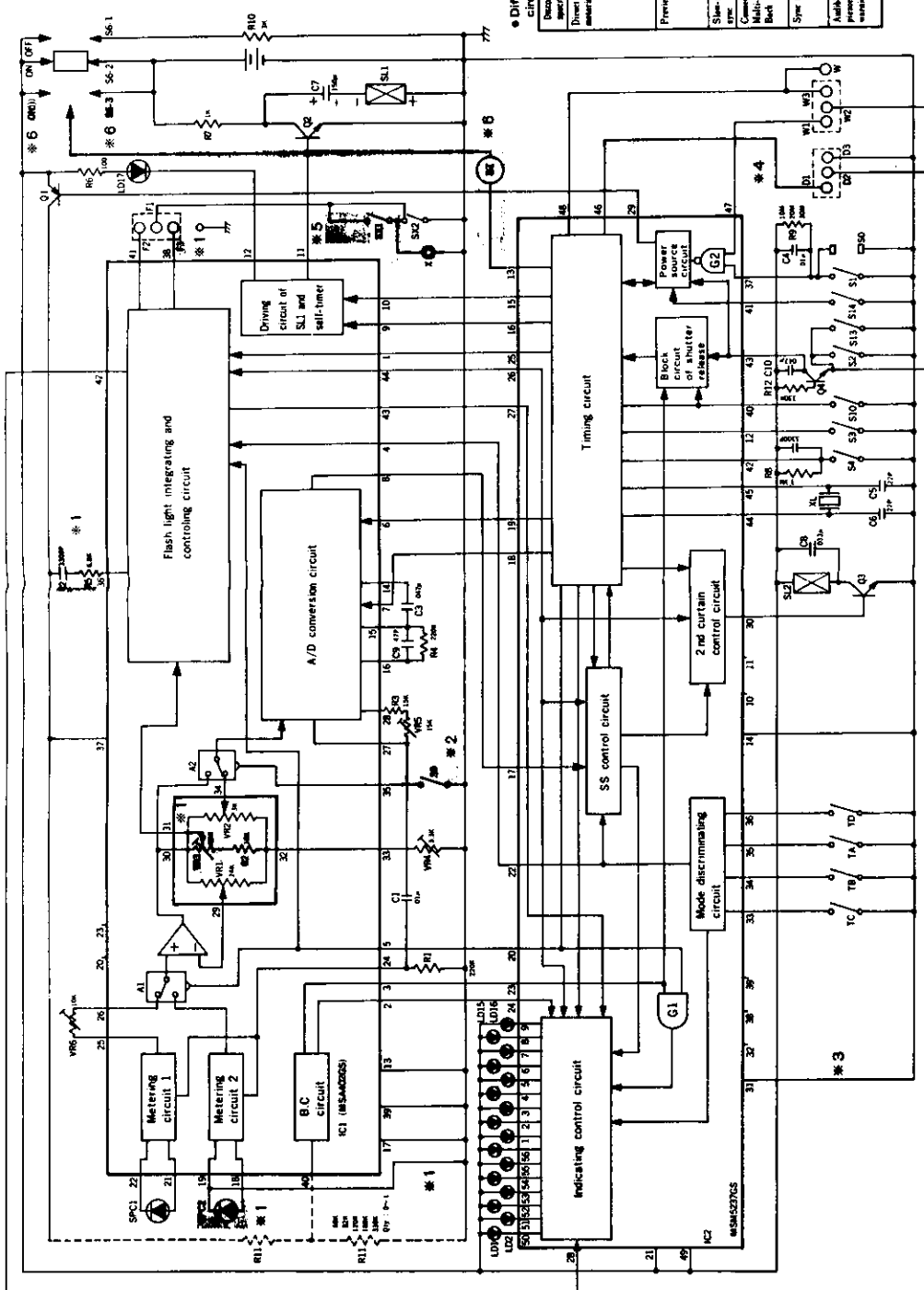
IC 1, IC 2 are for X-300, 370. Other IC pin numbers, their locations are common to X-300, 370. Measuring conditions: Voltage: 220V, 50 Hz, working temperature: A mode around 55°C, 100% under LED test to 1.500. Lights of 300 W. lights very slightly according to speed of camera and measuring instrument.



Symbol	Designation	Value	Notes
S1	Switch SW	100k	
S2	Switch SW	100k	
S3	Switch SW	100k	
S4	Switch SW	100k	
S5	Switch SW	100k	
S6	Switch SW	100k	
S7	Switch SW	100k	
S8	Switch SW	100k	
S9	Switch SW	100k	
S10	Switch SW	100k	
S11	Switch SW	100k	
S12	Switch SW	100k	
S13	Switch SW	100k	
S14	Switch SW	100k	
S15	Switch SW	100k	
S16	Switch SW	100k	
S17	Switch SW	100k	
S18	Switch SW	100k	
S19	Switch SW	100k	
S20	Switch SW	100k	

Symbol	Designation	Value	Notes
IC1	MSM402GS		
IC2	MSM5237GS		
LD1	LED		
LD2	LED		
LD3	LED		
LD4	LED		
LD5	LED		
LD6	LED		
LD7	LED		
LD8	LED		
LD9	LED		
LD10	LED		
LD11	LED		
LD12	LED		
LD13	LED		
LD14	LED		
LD15	LED		
LD16	LED		
LD17	LED		
R1	Resistor	100k	
R2	Resistor	100k	
R3	Resistor	100k	
R4	Resistor	100k	
R5	Resistor	100k	
R6	Resistor	100k	
R7	Resistor	100k	
R8	Resistor	100k	
R9	Resistor	100k	
R10	Resistor	100k	
C1	Capacitor	100k	
C2	Capacitor	100k	
C3	Capacitor	100k	
C4	Capacitor	100k	
C5	Capacitor	100k	
C6	Capacitor	100k	
C7	Capacitor	100k	
C8	Capacitor	100k	
C9	Capacitor	100k	
C10	Capacitor	100k	

X-300 Circuit Diagram



Differences from X-500/-570

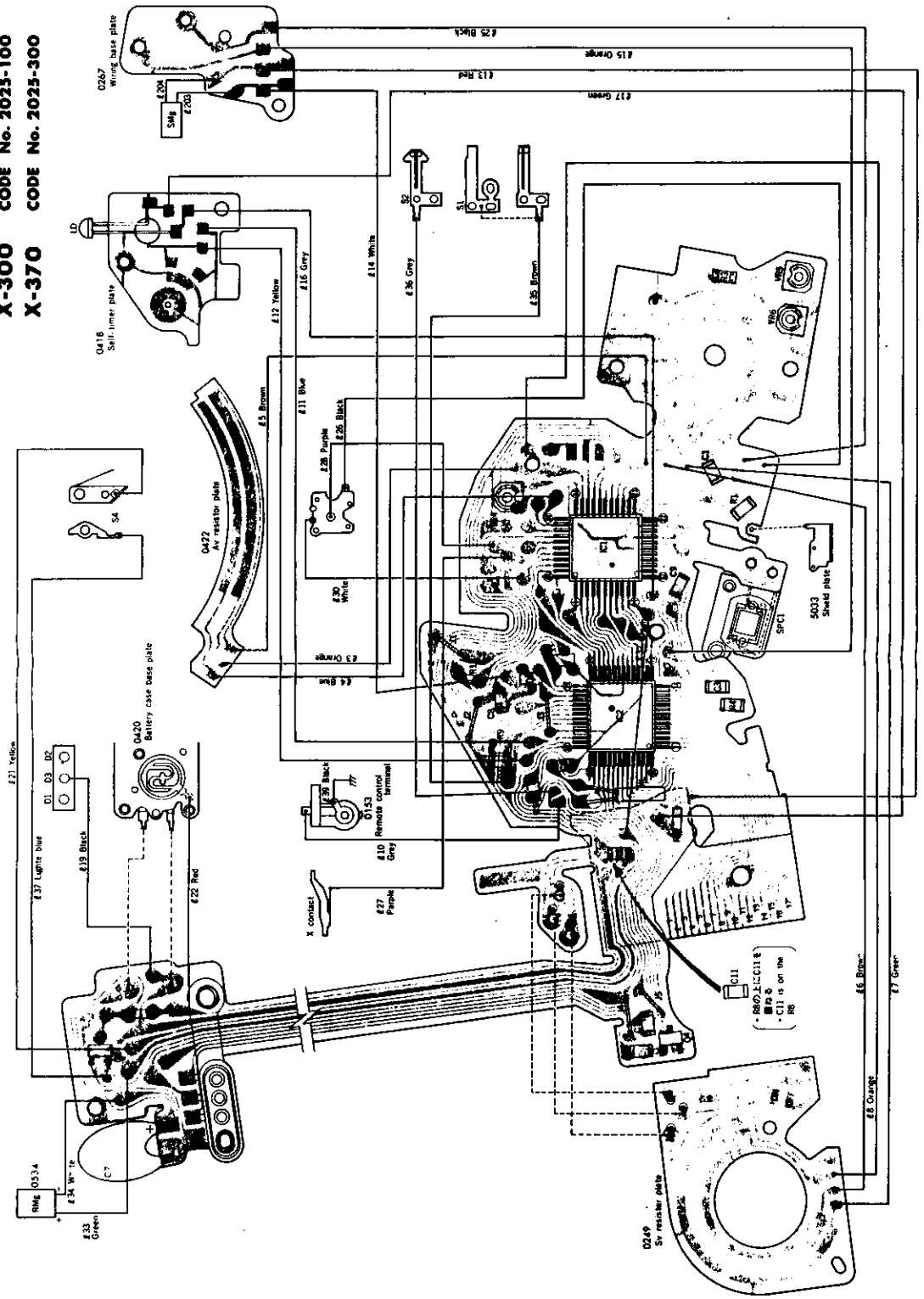
Discontinued specifications	Modification of current	Cancel degree
Driver and fuel tank	• Discontinuity of electrical components. SP2Z, V01, K1, P1, S1, T2, T3, T4, T5, T6, T7, T8, T9, T10, T11, T12, T13, T14, T15, T16, T17, T18, T19, T20, T21, T22, T23, T24, T25, T26, T27, T28, T29, T30, T31, T32, T33, T34, T35, T36, T37, T38, T39, T40, T41, T42, T43, T44, T45, T46, T47, T48, T49, T50, T51, T52, T53, T54, T55, T56, T57, T58, T59, T60, T61, T62, T63, T64, T65, T66, T67, T68, T69, T70, T71, T72, T73, T74, T75, T76, T77, T78, T79, T80, T81, T82, T83, T84, T85, T86, T87, T88, T89, T90, T91, T92, T93, T94, T95, T96, T97, T98, T99, T100, T101, T102, T103, T104, T105, T106, T107, T108, T109, T110, T111, T112, T113, T114, T115, T116, T117, T118, T119, T120, T121, T122, T123, T124, T125, T126, T127, T128, T129, T130, T131, T132, T133, T134, T135, T136, T137, T138, T139, T140, T141, T142, T143, T144, T145, T146, T147, T148, T149, T150, T151, T152, T153, T154, T155, T156, T157, T158, T159, T160, T161, T162, T163, T164, T165, T166, T167, T168, T169, T170, T171, T172, T173, T174, T175, T176, T177, T178, T179, T180, T181, 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Symbol	Name	Symbol	Name	Symbol	Name
S ₀	Teach SW	B-0	Main SW (ON)	S ₁	X contact
S ₁	Mastering SW	S ₀	PV SW	T ₁	TV SW
S ₂	Release SW	S ₁	Self-clear SW	T ₀	
S ₃	Trigger SW	S ₂	Release SW		
S ₄	Reset SW	S ₃	AE lock SW		
S ₅	Main SW (OFF)	S ₄	Control SW up/down		

Block	Function	Input	Function	Output	Function	Input	Function
IC ₁	Measuring, calibration, A/D conversion, I/O control, S/S control, calibration control	SR ₁	Shutter magnet	R ₁	Teach S/W adjustment	SR ₂	Precession against power using RD ₁
IC ₂		SR ₂	Setting	R ₂	D.C. lock settings	SR ₃	Precession against power using RD ₂
		VR ₁	Preload setting	Q ₁	Power source driving	SR ₄	Precession against power using RD ₃
		VR ₂	144V ² adjustment	Q ₂	SR ₁ driving	SR ₅	Expansion
		VR ₃	280V ² adjustment	Q ₃	SR ₂ driving	SR ₆	Double precession

[illegible]

X-300 CODE No. 2023-100
X-370 CODE No. 2023-300



1 IC pin voltages

Measuring conditions: ● Supply voltage: 3V

● A mode: Measure with no lens attached in the room around ASA 100.

● M mode: Only difference from A mode is given in the table. (Shutter speed is at 1/1000 sec.)

Pin No.	Winding completed metering (S, ON)	Shutter released metering (S, ON)	Pin No.	Winding completed metering (S, ON)	Shutter released metering (S, ON)
IC ₁ 1	0.07	0.07	IC ₁ 16	1.26	1.26
2	3.0	3.0	17	0	0
3	3.0	3.0	18	0.05	0.05
4	A mode 0.07 M mode 0.8	A mode 0.07 M mode 0.8	19	0	0
5	3.0	3.0	20	0.7	0.7
6	1.2~1.6	1.2~1.6	21	0.05	0.05
7	3.0	3.0	22	0.06	0.06
8	1.1~1.3	1.1~1.3	23	0.5	0.5
9	0	0	24	0	0
10	0	0	25	1.08	1.08
11	0	0	26	1.03	1.03
12	1.6~2.0	1.6~2.0	27	1.15	1.15
13	0	0	28	1.44	1.44
14	1.15	1.15	29	1.04	1.04
15	1.15	1.15	30	1.08	1.08

Pin No.	Winding completed metering (S, ON)	Shutter released metering (S, ON)
IC ₁ 31	0.1~0.6	0.1~0.6
32	0.94	0.94
33	0.16	0.16
34	1.08	1.08
35	0.7~1.5	0.7~1.5
36	3.0	3.0
37	3.0	3.0
38	0	0
39	0	0
40	1.5	1.5
41	0	0
42	3.0	3.0
43	3.0	3.0
44	3.0	3.0

● There is possibility having difference voltage at the state of S, ON and S, OFF (metering hold).

● Above values are obtained by actual measuring, pin voltages vary slightly according to the measured camera.

Pin No.	Winding completed metering (S, ON)	Shutter released metering (S, ON)	Pin No.	Winding completed metering (S, ON)	Shutter released metering (S, ON)
IC ₁ 1	3.0	3.0	IC ₁ 20	3.0	3.0
2	3.0	3.0	21	3.0	3.0
3	3.0	3.0	22	A mode 0.07 M mode 0.8	A mode 0.07 M mode 0.8
4	3.0	3.0	23	3.0	3.0
5	3.0	3.0	24	3.0	3.0
6	3.0	3.0	25	0.07	0.07
7	3.0	3.0	26	3.0	3.0
8	3.0	3.0	27	3.0	3.0
9	3.0	3.0	28	3.0	3.0
10	0	0	29	2.2	2.2
11	3.0	3.0	30	0.06	0.06
12	0	3.0	31	0	0
13	3.0	3.0	32	3.0	3.0
14	0	0	33	A mode 3.0 M mode 0	A mode 3.0 M mode 0
15	0	0	34	3.0	3.0
16	0	0	35	3.0	3.0
17	1.1~1.3	1.1~1.3	36	0	0
18	3.0	3.0	37	0.6~1.8	0.6~1.8
19	1.2~1.6	1.2~1.6	38	3.0	3.0

Pin No.	Winding completed metering (S, ON)	Shutter released metering (S, ON)
IC ₁ 39	3.0	3.0
40	3.0	3.0
41	3.0	3.0
42	2.2	0
43	3.0	3.0
44	1.5	1.5
45	1.0	1.0
46	0.1~0.5	0.1~0.5
47	3.0	3.0
48	0.1~0.5	0
49	3.0	3.0
50	A mode 3.0 M mode 1.2	A mode 3.0 M mode 1.2
51	A mode 1.2 M mode 3.0	A mode 1.2 M mode 3.0
52	3.0	3.0
53	A mode 3.0 M mode F	A mode 3.0 M mode F
54	1.2	1.2
55	3.0	3.0
56	3.0	3.0